TECHNOLOGY DEPT

First Copy

# Fleet Owner

VOLUME 23
NO. 6

DECEMBER
1939

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

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DETROIT

7 JUMPS AHEAD for 1940

1 ADVANCED BEAUTY
2 15"-20" MORE LOAD-SPACE
3 IDEAL WEIGHT DISTRIBUTION
4 SHORTER TURNING RADIUS
5 IMPROVED GOLD CROWN ENGINE
6 INTERCHANGEABILITY OF MECHANICAL UNITS
7 HEAVIER FRAMES

REO

REO MOTOR CAR COMPANY, Lansing, Michigan

# "TERRIBLE TERRY" the Truck Driver

## TERRY TRIES BEFORE HE BUYS

HOW'S CHANCES OF TRYING OUT THIS SUIT FOR A COUPLA DAYS? MAYBE I'D BUY IT!
ARE YOU CRAZY?
LOOK PROSPEROUS WITH A "CHECK" SUIT
I WANNA SAMPLE SOME OF YOUR JAVA BEFORE I BUY A CUP
GO AWAY!
YA CAN'T DUNK OUR SINKERS IN YOUR COFFEE
CAN I TRY OUT A FORD TRUCK BEFORE I BUY IT?
YOU BET, BUDDY. AN ON-THE-JOB TEST, WITH YOUR OWN LOADS, WILL PROVE IT'S THE TRUCK FOR YOU!

## MAKE AN "ON-THE-JOB" TEST TODAY!

Ask any Ford dealer how you can arrange for a free demonstration — an actual "on-the-job" test designed to give you the *facts* on Ford performance and economy before you buy!

### Before You Buy Any Truck or Commercial Car— See the Ford Line for 1940!

3 Engine Sizes — 95, 85, 60 hp ★ 6 Wheelbases ★ 42 Body and Chassis Types New Modern Styling ★ New Simplified Chassis Design ★ New Longitudinal Front Springs ★ Increased Engine Accessibility ★ Stronger Cab Construction ★ Increased Driver Comfort ★ New Sealed-Beam Headlamps ★ New Instrument Panels — *and a host of other new and time-proved features that make Ford Trucks and Commercial Cars for 1940 more than ever the outstanding units for the money!*

## FORD TRUCKS AND COMMERCIAL CARS

Ford Motor Company, builders of Ford V-8 and Mercury Cars, Ford Trucks, Commercial Cars, Station Wagons, Transit Buses.

# THE NATION'S LEADING FLEETS RELY ON DEPENDABLE CHAMPION SPARK PLUGS

IN 1939, as in many years past, Champion Spark Plugs continued as the choice of the nation's leading fleets of buses and trucks.

Because Champion maintains close contact with hauling problems of every type, through its representatives in the field, Champions have become recognized as the spark plugs which can be depended on for maximum engine performance, economy and long life.

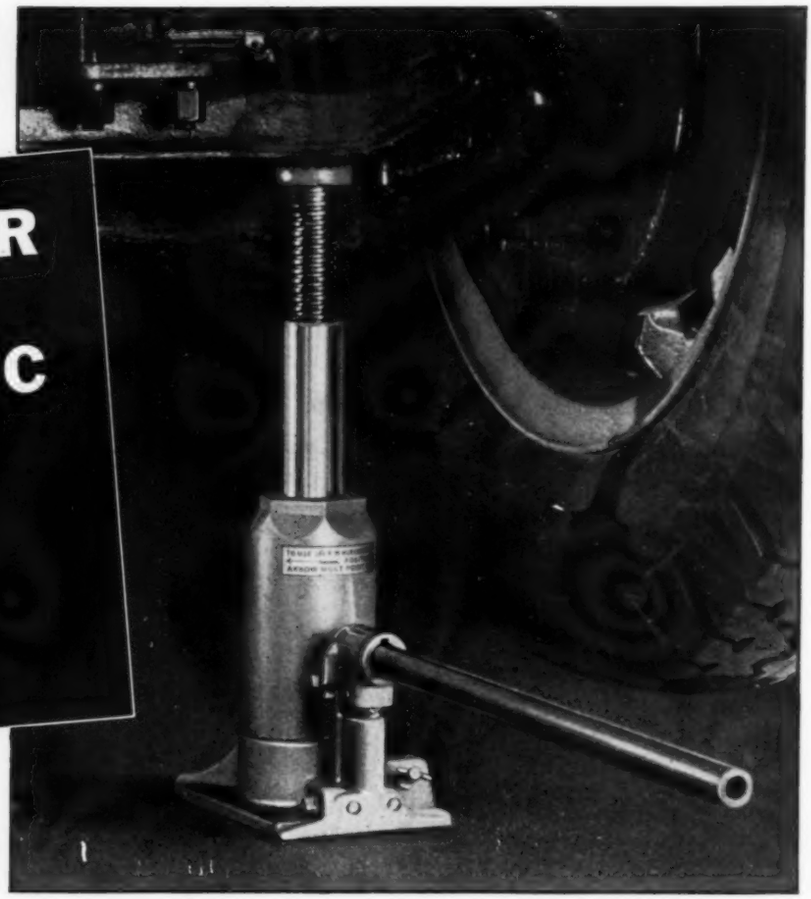
Spark plugs are a determining factor in low maintenance costs and dependable service. As such they deserve your serious consideration. Champion Spark Plugs are made in sizes and types to meet every service condition, in every kind of equipment.

If you are not now using Champions or if you are faced with a spark plug problem, we suggest you contact us, and one of our factory representatives will welcome an opportunity to consult with you and make sound recommendations.

USE THE SPARK PLUG CHAMPIONS USE—CHAMPIONS!

Do any of the trucks in YOUR fleet have an old, broken or slow-acting jack? . . . If so—NOW is the time to equip with new H-W Jacks . . . . . .

**HEIN-WERNER**
easy operating
**HYDRAULIC JACKS**
are priced at
**$2.80** and up



**All jacks in the complete Hein-Werner line are - -**

# *BUILT RIGHT and PRICED RIGHT!*

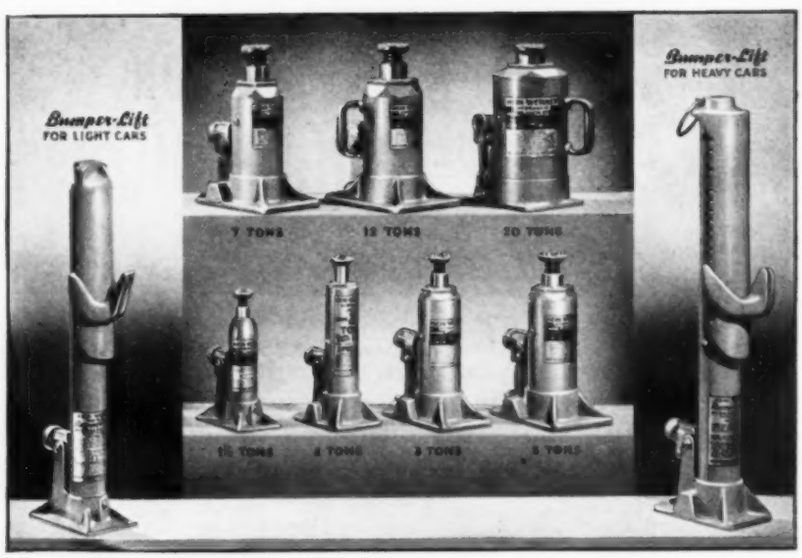
The H-W combination of sturdy construction, safe, easy operation and LOW price warrant your placing a Hein-Werner Hydraulic Jack in every truck in your fleet.

"Bullet" Model, 1½ ton capacity is only $2.80 net . . . 2 ton Light Truck Special only $2.95 . . . 3 ton, $6.95 . . . 5 ton, $8.95 . . . 8 ton, $11.75 . . . 12 ton, $17.50 . . . and 20 ton capacity only $30.00. Also Light Bumper-Lift for passenger cars only $4.10, and Heavy Bumper-Lift, $5.45. (West Coast prices slightly higher).

Hein-Werner also makes 1½, 2, 3 and 4 ton capacity Service Jacks for shop and garage use . . . Ask your jobber or write us for details and *latest prices* on complete line.

•

**HEIN-WERNER MOTOR PARTS CORP.**
**WAUKESHA, WISCONSIN**




FEW MODELS ENGINEERED TO DO THE WORK OF MANY
**HEIN-WERNER** *hydraulic* **JACKS**

# FLEET OPERATOR SLASHES MAINTENANCE COST 15%

## 78-VEHICLE FLEET THRIVES ON DAY-AND-NIGHT SERVICE

A FEW OF THE 78 CHEVROLET CARS in the fleet of the Hertz Driv-Ur-Self Station, Birmingham, Ala. These passenger cars as well as 30 "Chevy" trucks are all 100% Texaco fueled and lubricated.

TO KEEP these vehicles on the job, "for hire," the Birmingham Station of the country-wide Hertz Driv-Ur-Self System uses Texaco exclusively . . . has for more than 5 years.

They report that Texaco has enabled them to improve their service, reduce the amount of lubricants used, and lower maintenance cost as much as 15%.

So successful has Texaco been in Birmingham that Hertz Stations in Montgomery and Mobile are also Texaco 100 percenters, using Texaco *Fire-Chief*, Insulated Texaco Motor Oil, Texaco Marfak, Texaco Thuban, Texaco Hypoid Lubricant.

Experienced automotive engineers, trained in the selection and application of Texaco Automotive Products, will be glad to demonstrate that savings can be made with Texaco Perfected Lubrication.

For prompt engineering service and deliveries, phone the nearest of our 2279 warehouses in the U. S., or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

**"The Last Word in Gasoline Performance"**

This is the way Hertz Driv-Ur-Self Station in Birmingham, Ala. speaks of Texaco *Fire-Chief*. This busy Station also highly praises Texaco engineering service as of the utmost help in keeping the fleet tuned to peak performance.

TEXACO

Texaco Dealers invite you to tune in The Texaco Star Theatre—a full hour of all-star entertainment — Every Wednesday Night — Columbia Network — 9:00 E.S.T., 8:00 C.S.T., 7:00 M.S.T., 6:00 P.S.T.

# TEXACO MARFAK

# Clean Oily Floors Without Fire Risk!

AS a safeguard against fire, as an aid in reducing accident hazards and in protecting tires, you will find nothing as effective for cleaning service station and garage floors as Oakite Penetrant.

Applied in water solution, this material quickly softens the deposits of grease and muck so that a light brushing and rinse leave floors absolutely clean.

## Inexpensive To Use

Furthermore, leading fleet operators will tell you that keeping floors clean the easy Oakite way is inexpensive. Only small amounts are needed to do the job. Not only this, but you will find Oakite Penetrant saves considerable time and effort.

Whether for floor cleaning, steam cleaning, or cold or hot cleaning of repair parts, there is an Oakite material and method that will give you the results you want at low cost.

*Write for FREE 36-page booklet, packed full of money-saving ideas for fleet operators. No obligation, of course.*

OAKITE PRODUCTS, INC.
52G Thames St., New York, N. Y.
*Representatives in all Principal Cities of the U. S.*

OAKITE
1909 1939
COMPLETING
30
YEARS OF SERVICE TO INDUSTRY

OAKITE *Certified* CLEANING
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT



# FLEET OWNER

(Automotive Fleet Headquarters)

Charter CCA Member

*Published Monthly in the interests of Automotive Fleet Owners, who do all or part of their own Service, and devoted to the Better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.*

VOL. 23 New York, December, 1939 No. 6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Published Monthly by

**FERGUSON PUBLISHING COMPANY, Inc.**

**90 West Street, New York, N. Y.**

(Telephone: REctor 2-9179)

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**Subscription: $2.00 Yearly; Single Copies 25c**



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*The mechanic holds a Purolator cartridge with the sludge collected in 8000 miles of ordinary driving, with regular oil changes.*

You can't keep dirt in the air from getting sucked into the engine. And you can't keep it from building up inside the engine. But you *can* keep it from circulating with the motor oil. You *can* keep it from forming the thick, gritty sludge that clogs passages, scores surfaces, steals power, and wastes money! The way to avoid the danger of dirty oil is to

# KEEP IT CLEAN with PUROLATOR

N-17 is for engines of 7 to 10-quart crankcase capacity. N-16, identical with N-17 except in size, is for engines of less than 7-quart capacity.

The filter-element in its metal container can be lifted and replaced without the use of tools.

With the N-Type Purolator, it's easy to be certain of clean oil. When the oil on the measuring stick becomes visibly dirty, the driver or mechanic knows it is time to replace the Purolator element — an inexpensive job, completed in a jiffy.

The N-Type Purolator is made in sizes to fit any crankcase capacity. Exceptionally large capacity for dirt absorption means longer element life . . . more satisfactory engine performance.

See your distributor today or write to MOTOR IMPROVEMENTS, INC., Newark, New Jersey . . . founders of the oil filter industry.

★ *Always check the oil for cleanliness as well as quantity.*

## PUROLATOR-PROTECTION FOR DIESELS

For the fuel line. The new DN-Type Purolators supply the last stage of filtration on the pressure side of the fuel transfer pump just ahead of the injection pump. DN-Type Purolators remove the extremely fine foreign particles that would seriously damage the injection system. When the filtering element becomes saturated, it shuts off all flow. No dirty fuel is ever allowed to pass.

•

For Diesel lubricating oil, the N-Type Purolator is available in sizes to meet all flow rates and crankcase capacities.

# FAST FREIGHT—TOUGH ROUTE—68,000 POUNDS

## —So, naturally, they use a GM DIESEL

THE Nevada-California Fast Freight Truck Company has one of the toughest routes in the country—from Reno, Nevada to San Francisco.

Truck, trailer and gross load of 68,000 pounds. Over 1,800 miles a week—every week—

With a motto that says, "Daily express service at freight rates."

*They can't lose time*—and they don't. The lightning pickup and lugging ability of the GM Diesel insures an "on time" schedule.

*They want a top payload*—and they get it. The power-packed General Motors 2-cycle design saves dead weight, and permits greater payload.

*It's an everyday job*—and that's where the robust stamina of this GM Diesel comes in. It's an engine which does its work day after day without pampering.

*They can't lose time and money on "service."* The fact is this truck has traveled over 40,000 miles since last April with nary a whimper, without road failure or trouble of any kind.

*They've got to watch costs*—and here the ability of this engine to obtain the most energy from the last drop of fuel pays dividends.

Of course all this is *designed and built into* the GM Diesel. The General Motors 2-cycle principle makes a sturdy, compact engine, an engine that turns out more power with less weight. A simple Unit Injector and Fuel Pump measures out fuel with stop-watch regularity, while Uniflow Blower Scavenging assures each cylinder a full charge of clean air at all altitudes.

GM
GENERAL MOTORS
DIESEL POWER

**68,000 POUNDS BACK OF A GM DIESEL**
This NEVADA-CALIFORNIA FAST FREIGHT truck operates 1,800 miles a week—every week—on one of the toughest truck routes of the country.

• • •

The tougher *your* problem, the scantier your profit-margin, the more you need this engine. And the sooner you look into GM Diesel facts the sooner you'll be stepping up payload and running time, and cutting down costs.

You can get these facts from a GM Diesel dealer near you. We'll be happy to send you his name and address, if you'll write or wire.

**DIESEL ENGINE DIVISION**
General Motors Sales Corporation, Cleveland, Ohio

# ☆ GENERAL MOTORS DIESEL ☆

VOL. 23
NO. 6

# FLEET OWNER

DECEMBER
1939

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

## Stripping *the* Thread » »

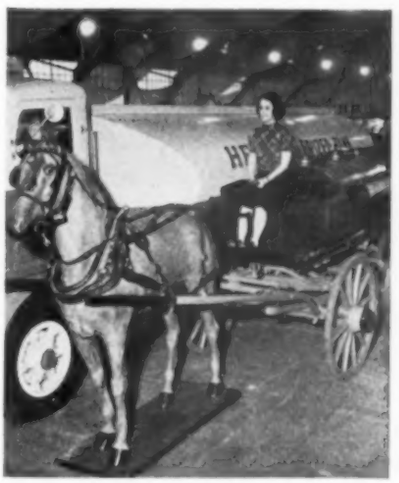
(The Editor's Column)

### TRUCK SHOW

● Another truck show has come and gone. . . . This year's event—the Sixth Annual National Motor Truck Show, held at Chicago's Navy Pier, was another of those shows that will go down in history as being famous for its high-quality attendance rather than for its record-breaking crowds; of the latter there were, frankly, none. . . . And isn't that just as it should be? . . . Many of the exhibitors seemed pleased because that perennial pest—the literature collector—was conspicuous by his absence this year. After all, those pesky purloiners of printed matter cost the truck industry many dollars each year, without doing it a bit of good, and we feel that the show management is to be complimented in attracting a *buying* crowd, rather than a *general* one of multitudinous number. . . . If you like figures, just say that we told you our estimate was about 25,000 visitors, all told. . . . Not so many the first few days, but after that, about 3,500 per day. . . . Another thing, this year's show seemed to attract more of a *national* audience, due in part, to the fact that Chicago is more centralized, and could draw from the East as well as the West. . . . Many of those truck makers whose names *should* appear on *any* truck show roster, failed to jump in at the last moment, as Yours Truly anticipated. Even *we* can be wrong once in a while, and we admit it, although a few of them actually did. . . . Elsewhere in this issue you will find more details of the show. . . . Although we are not the type of individual who goes around handing out bouquets, we think that Brother Winchester and his show pioneers are continuing to do the truck industry a good turn by staging industry-promoting affairs of this kind.

### SEALED BEAM

● Automotive lighting engineers would have us understand that the introduction of the new Sealed Beam headlights renders previous types of automobile lights as obsolete as yesterday's newspaper. . . . Don't feel too badly about it, however, if you're one of those who happened to purchase any great amount of rolling stock, prior to the advent of this new type of headlight. . . . We have it on good authority that soon you will be able to purchase *replacement* headlights, incorporating the Sealed Beam idea, for considerably less than ten bucks per pair. . . . To us it seems reasonable that modern headlighting is worth a saw-buck per vehicle, especially if you spread this amount over the life-expectancy of the vehicle. It is worth that much in the *saving* in maintenance costs you should enjoy, from the standpoint of "no more polishing of reflectors." . . . It should also be worth that much (and perhaps a great deal more) if it is instrumental in preventing one single accident per vehicle—and night accidents are numerous, you know. . . . All of this might sound like propaganda for the lamp makers, but *you* know *us* better than that—we hope. . . . As this is being written, we don't know *who* is going to be the first to offer replacement Sealed Beam headlights—the gist of the idea has merely been passed on to us "over the transom." . . . But we think it's a mighty fine thing, and do not hesitate to tell you about it.



HEIL Company's exhibit (in part) at the recent National Motor Truck Show held in Chicago. No caption came with this picture, but it's easy to see the difference between truck-tanks of a few decades ago and present-day tank equipment.

H. Clay Fischer
Editor

# The Editor's Column » »

(Continued from Page 9)

**THEN—**

**FIFTEEN YEARS of progress in trailer design is illustrated in these two pictures. . . . This job was the last word in the Berdan Company's fleet, fifteen years ago, having been bought in the year of 1924.**

**NOW—**

**HERE IS ONE of the modern semi-trailers owned by the Berdan Company today. . . . The Company is over 100 years old, having been established in the year of 1836. . . . Many changes were witnessed by this firm.**

## LOW-BID

● Do you always place your orders with the lowest bidder? If you do, are you not doing the very thing that any *clerk* could do, rather than the executive that you are? . . . What prompts this rather critical condemnation is this: Our attention has been called by *The Mainspring* (house-organ of Wallace Barnes Company) to a serious gentleman who recently resigned, after serving as purchasing agent for a large manufacturer. . . . Upon his resignation, said p. a. was overheard to proudly remark: *"After fifteen years I can honestly say that I always placed the business with the lowest bidder."* . . . He really implied by this statement, according to *The Mainspring*, that he failed to recognize five potent factors, to wit: (1) that the average market price is probably nearer the correct market price than the lowest price. . . . (2) That apparently no recognition was paid to the supplier who, through research and inspection, gave a little *more* than the specifications called for. . . . (3) That he apparently gave no recognition to service and responsibility. . . . (4) He probably lost for his company the engineering advice which generally accompanies a quality product. . . . (5) He apparently did not establish himself as a *leader*, in maintaining and improving quality in his plant; for his was an opportunity that comes more often to the purchasing agent than to any other executive. . . . The elevation of purchasing to a truly *executive* position, in recent years, is due to a broad interpretation of true economy in buying, *The Mainspring* further points out. . . . Don't put a premium on cheapness as opposed to economy. . . . The lowest bid is not always the most economical in the long run.

●

## WHO INVENTED IT?

● Some time ago a nationwide search was conducted for the originator of the center traffic safety line on highways, the "white stripe," by The B. F. Goodrich Company and the honor was awarded to the late Edward N. Hines of Detroit, vice chairman of the Wayne County Board of County Road Commissioners and a prominent figure in highway and highway safety activities for many years. Mr. Hines was presented a plaque to commemorate his great contribution to highway safety, a method now being used internationally. His origination of the center traffic stripe was in 1911. . . . Now comes Alexander L. H. Darragh of Chicago, who submits a photograph of a section of old highway between Mexico City and Cuernavaca, Mexico, built under the Spanish regime 350 or 400 years ago, and clearly showing that the "white stripe" was in use even then. . . . This stone road, many sections of which are in service today, mainly by foot travelers, and light animal-drawn vehicles, despite the creation of new high speed automobile highways, has a "built-in" center line of light colored stones. . . . Mr. Darragh took the photograph at a point where the old road intersects the new and modern highway to Mexico City. He gives no historical reason for creation of the "white center line" but believes it might have been put in, even in those days of comparative antiquity, to prevent quarrels to those ancient travelers who wanted to be sure they got "their half" of the road for their burros and wagons. . . . We feel sure that none of you fellows can discover an earlier one.

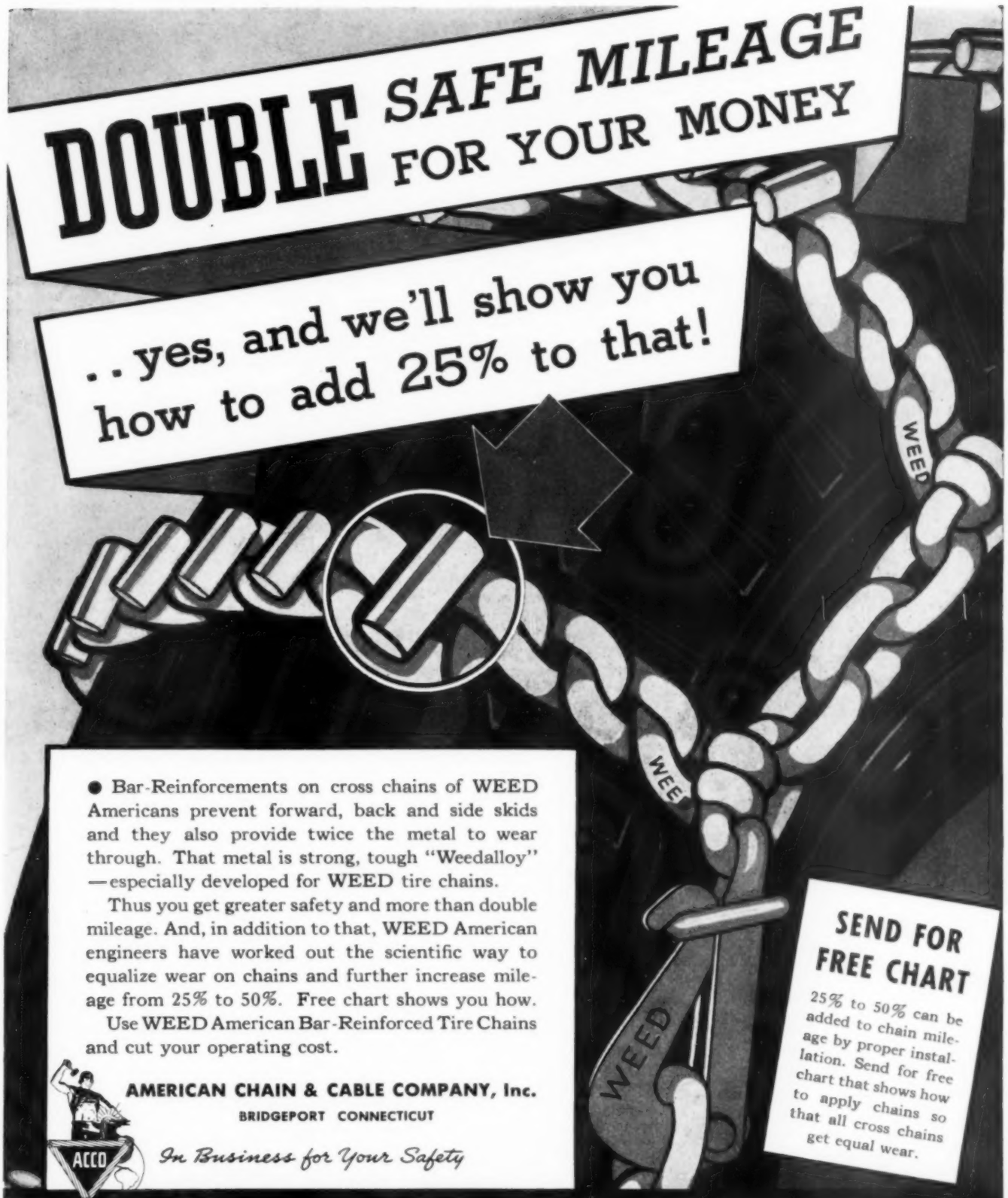
●

## SOVIET SAFETY

● We are indebted to *American Trucking Associations* for this one: "A truck driver in Moscow, Russia, recently took two drinks of vodka, drove his truck through a safety zone in front of the American Embassy, killed two pedestrians and injured eight others. . . . A few days later, the government announced that the driver had been executed." . . . On which we refuse to comment, save to say: "Severe souls, these Soviets."

# DOUBLE SAFE MILEAGE FOR YOUR MONEY

## ..yes, and we'll show you how to add 25% to that!




● Bar-Reinforcements on cross chains of WEED Americans prevent forward, back and side skids and they also provide twice the metal to wear through. That metal is strong, tough "Weedalloy" —especially developed for WEED tire chains.

Thus you get greater safety and more than double mileage. And, in addition to that, WEED American engineers have worked out the scientific way to equalize wear on chains and further increase mileage from 25% to 50%. Free chart shows you how.

Use WEED American Bar-Reinforced Tire Chains and cut your operating cost.

**AMERICAN CHAIN & CABLE COMPANY, Inc.**
BRIDGEPORT CONNECTICUT

*In Business for Your Safety*

**SEND FOR FREE CHART**

25% to 50% can be added to chain mileage by proper installation. Send for free chart that shows how to apply chains so that all cross chains get equal wear.

# WEED

**WEED American *Bar-Reinforced* TIRE CHAINS**

# Stripping *the* Thread

(*Continued from page* 10)

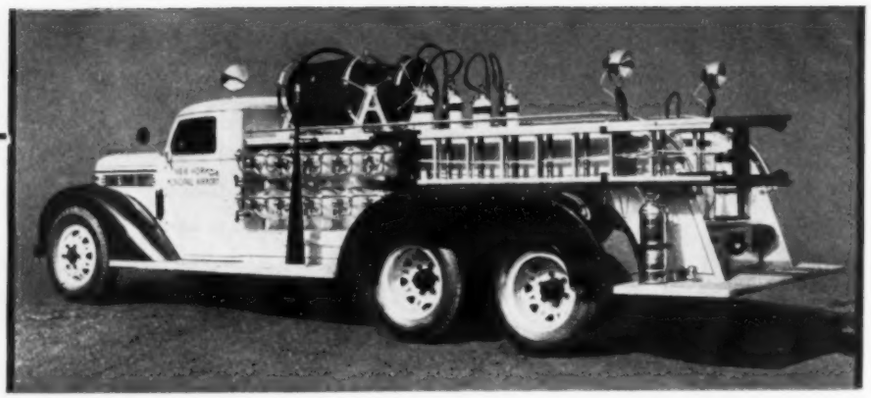
## LAUDS FLEET EFFICIENCY

● The fleet owner (and this means you) is America's motoring paragon, according to W. S. Isherwood, general sales manager of AC Spark Plug Company. . . . In a recent interview for the press, Mr. Isherwood spared no words in extolling the practices of fleet owners, with especial reference to their maintenance foresight. . . . We believe you'll enjoy reading the following, which is quoted from Mr. Isherwood's statement: "*A leaf, taken from the fleet owner's note-book of operating methods, should constitute the greatest single contribution to the car owner, in realizing lasting value from his automobile. . . . Fleets, generally owned by private concerns, operate anywhere from ten to several hundred trucks, buses and cars. . . . Performance records are carefully kept. The cost over a long period of operation, not first-cost, is generally the chief concern to the fleet man. . . . That is why the fleet owner's maintenance chief will not hesitate to install cost-saving accessories; why he will use only approved replacements; why he will always keep his engines tuned-up; and be ever on the alert in making other adjustments and performing regular lubrication. . . . In the school of the fleet owner's maintenance department, there is a fine lesson for the thrifty motorist.*" . . . Thanks, very much, Mr. Isherwood! We agree with you most wholeheartedly. And we're sure that your expression of high regard towards fleet maintenance men, is going to be thoroughly appreciated by them, even though, in this fast-moving day and age, many might be inclined to reply, "So what?"

●

## SCOOTING THE MAIL

● If many mail-carriers manage to get auto-scooters like the one Henry R. Smith, of Columbia, S. C. (himself a mail-man) has just invented, hiking for mail-carriers will no longer be regarded as a "busman's holiday." . . . Mr. Smith delivers mail in a residential district and has long distances to walk between houses, so he devised an auto-scooter to carry both himself and his mail-sack. He says it cuts from one to two hours off the time required to cover his eight-mile route. . . . Mr. Smith stands at the rear of his machine, which he steers with one hand and, with the other hand, he operates a control that throws the engine out of gear and applies the brakes at the same time. It is about four feet long, powered with a ⅝ h.p. internal-combustion engine, and has speed of from 4 to 12 miles per hour. Its General Streamline Jumbo, Jr. pneumatic tires iron out most of the bumps in the sidewalk. (How's that for a plug?) . . . The cost of Mr. Smith's machine was about $150 but, if adopted by the post office department, it could be produced in quantity for between $75 and $100, it is said.—(*Acme Photo*).



FIRE TRUCK . . . This new type emergency auxiliary unit carries hundreds of pounds of carbon dioxide, for putting out fires at New York City's new North Beach Airport. . . . The chemical is ejected through hoses in the form of gas and "snow." . . . Lux engineers designed and built the complete unit, including the body. . . . It should just "eat up" gasoline fires. Our thanks to Sherwin-Williams for the foto. . . . P.S. The unit is painted with Kem.

●

## BUSINESS GOING UP

● If you fail to get your share, is it because you are not taking advantage of your opportunities? . . . Here's the "handwriting on the wall," compared with a year ago, for the week ending November 1st:

| | | |
|---|---|---|
| Automobile Production | up | 20% |
| Automotive After-Market | " | 20% |
| Automotive Replacement Parts | " | 19% |
| Steel Activity | " | 68% |
| Heavy Engineering Awards | " | 20% |
| Electric Power Production | " | 13% |
| Commodity Prices | " | 13.7% |

Read the trend, and speed up your organization if you are not up in the front end of the parade.

●

## BRAKE SERVICING

● Elsewhere in this issue appears the first of a series of articles on modern automotive braking equipment. . . The series will include chapters on brake linings, brake drums and the various types of brakes in common use. . . . Don't let the fact that a manufacturer's service engineer wrote the articles, deter you from reading them. There are no "puff stories" in FLEET OWNER, you know! . . . We realize that many of the statements in the first article (in this issue) refer to things that most fleet men already know. . . . To some, however, especially vocational executives in certain fleets, the common engineering knowledge thus being presented may prove enlightening—if not startling. . . . We promise that the succeeding articles will not be so "elemental," but suggest that you read the first one carefully, so that you and the author will understand each other from the start. . . . It's on page 29 of this issue.

●

## FLEET COSTS AFFECT ALL

● This is not going to be news to you. We've got to say *something* to fill odd spaces, you know. . . . Little as the man in the street realizes it, the operating costs of America's truck fleets affect *everyone*. . . . They affect the prices of food, clothing and shelter, since motorized truck fleets represent an important part of America's transportation. . . . And the maintenance men (and mechanics) who keep them efficiently operating, are performing a service of superior importance, too. . . . If you do any advertising—of any kind—or if you have a publicity department, this is one point which might be stressed, in your contacts with the general public. . . . Do a good publicity job of this kind, and watch the tendency towards higher truck taxes disappear—perhaps not quite so fast as Junior's pie, but surely it should have some beneficial effect. . . . So much has been said regarding high and unjust truck taxation, that we'll quit right here. Besides, the space is filled, isn't it?

# STUDEBAKER TRUCKS

## do a great job on *any* job!

## *Oil delivery, for instance—*

**Studebaker Trucks range up to 20,000 pounds gross rating—32,000 pounds gross train rating.**

★

**They are built in both Cab-Forward and Standard Series Models.**

★

**They are sold and competently serviced throughout America and foreign countries.**

★

**Consult your Studebaker dealer!**

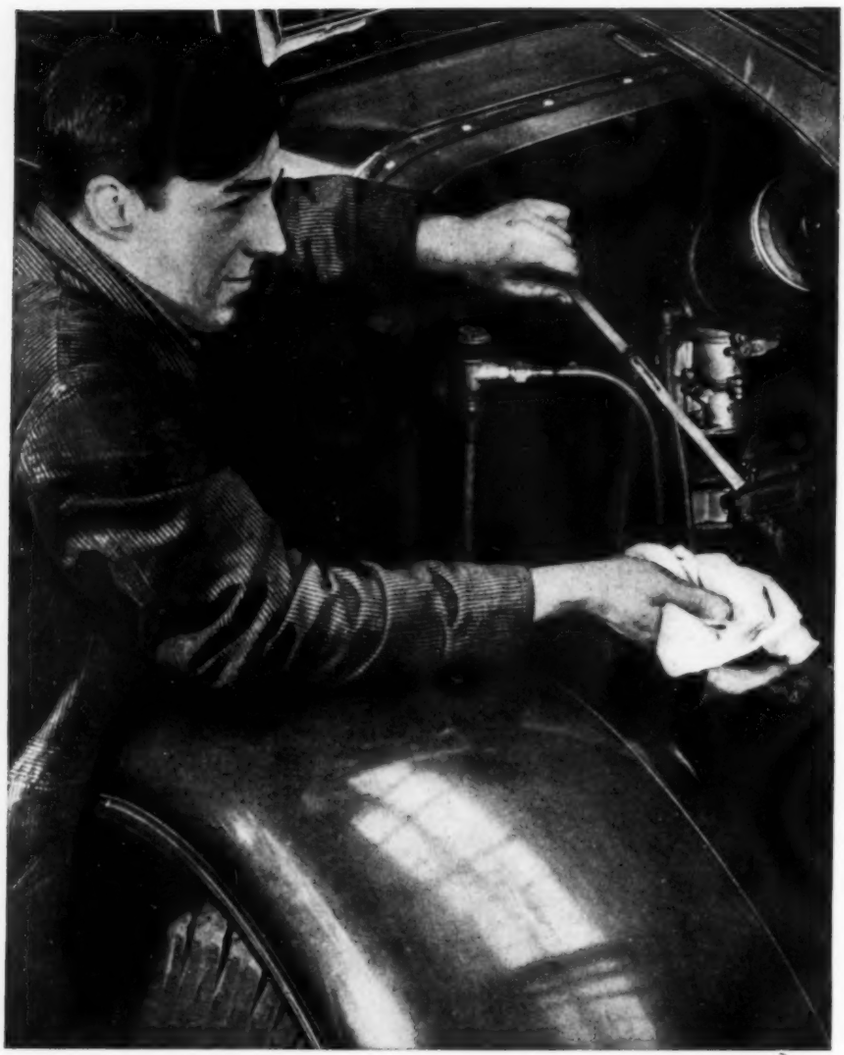
THIS special low-bed conversion of the popular Cab-Forward Studebaker model K20M-38, with its smart and convenient stake body, is another interesting example of Studebaker versatility.

Maximum payload space is provided, with minimum overall length and floor height. This wide adaptability of Studebaker chassis to almost any job requirements is familiar to every custom designer.

Studebaker's low prices and low operating costs assure utmost economy.

**THE STUDEBAKER CORPORATION**
*TRUCK DIVISION*
**SOUTH BEND, INDIANA**

**FOREMOST IN TRANSPORT SINCE 1852**



**BECAUSE Lubrication is perhaps the most important of all phases of Preventive Maintenance, this article is devoted entirely to the Lubrication of the Colonial Sand & Stone Company's fleet—and the Preventive Maintenance Control System used in carrying it out.—Editor.**

ANTHONY POPE, vice-president of Colonial Sand & Stone Co., Inc., New York City, N. Y., is rather proud of the whole thing, but not at all boastful. "Maintenance problems? . . . We don't have them any more," he says, "because we have what seems to be a fool-proof preventive maintenance system. Still, if we hear of or develop a better way, we'll use that instead!"

And to this, corporation secretary, Frank B. Carbone agrees. "Our control system is keeping every one of our gasoline trucks on the road every day—and we're making sure that it will do as well for the Diesels!"

There's no reason why it shouldn't. Colonial's preventive-maintenance control system is the essence of simplicity itself. It doesn't depend on anybody's *remembering* when to do what; and it is perfectly adapted to a large fleet of which any truck, at any time, may be in any one of twelve garages.

For gasoline engines, the control system has covered lubrication, filter-cartridge replacement and crankcase oil changes. And now that Colonial's fleet will soon be all Diesel-powered, fuel-injector changes and fuel-pump changes are also being controlled. These preventive maintenance operations are scheduled for each truck on a definite hours-of-operation basis.

"Mileage is not considered at all," explains maintenance superintendent Timothy S. McGlynn, "because distance is inconsequential in our short-haul, heavy-duty operation. It is the *time* the motor has operated that correctly measures the need for attention. My personal belief is that within a few years, all of the major truck manufacturers will be recommending *time* as the service basis for all heavy-duty equipment."

The time-interval, naturally, will vary on different makes and types of trucks; also in different types of operations. Each standard has been set as the result of experience in Colonial's own service. While all periods have been lengthened as far as seems practicable, it is company policy to make all fleet maintenance truly preventive—and performing any operation a little *sooner* than might be essential, is considered as long-range economy.

But let's examine the operation of this fool-proof preventive maintenance control system. Only three forms are used, as illustrated here. Form I is the daily report card which each driver fills out, detailing total operation time of his truck. These cards are sent from each garage to the main office every night.

The first thing in the morning, the clerk in charge of the control system transfers the time of each truck into a loose-leaf book. A separate page for each truck (Form II) contains a whole year's lubrication record. The vertical columns are months, the horizontal lines represent days. Colored pencil strokes across the columns tell when each maintenance operation has last been performed—red strokes, for example, indicate lubrication; blue denotes crankcase drain, and so on. The small figures which may be seen in the columns of the form reproduced on page 16, are sub-total notations, each in its proper color of pencil, to aid the control clerk in watching approaching service periods.

When the morning posting of operation hours shows any truck within 10 hours of the end of its service period, the clerk makes a note of the truck number and the preventive maintenance that is required. This service list is before him in the evening when the 12 garage superintendents phone in to report what trucks they have. As a garage superintendent calls off a truck number that is on the service list, he is told what is to be done.

The garage superintendent notes this information on a card (Form III) which is given to the driver

## COLONIAL SAND & STONE *is* STRONG FOR

# PREVENTIVE MAINTENANCE

•

*An Interview with*
Anthony Pope,
*Vice-President,*
*Colonial Sand & Stone Co., Inc.,*
*New York City, N. Y.*

the next morning, with his truck and work card. Each driver is expected to take care of the lubrication maintenance of his truck at the end of his day's work, after which the card is signed by driver and garage superintendent and is sent to the main office.

Colonial's system designates each driver to do the lubrication and crankcase-oil changing on his own truck to eliminate "buck-passing." Says Mr. McGlynn:

"Each truck is always manned by the same driver, so when we 'permit' him to take care of his vehicle, we are enlisting his wholehearted interest and cooperation. He knows that he's not just on the seat; that his responsibility does not stop at the steering wheel. If anything goes wrong with the truck, the driver knows that he will be called to account. For the sake of his job, he makes it *his business* to see that lubrication maintenance is properly done. He does it himself!"

The drivers are paid for all time spent on servicing operations, of course. The grease foreman in each garage checks on crankcase drains to make sure that all old oil is out and that the drain-cock is properly closed before fresh oil is put in. After each lubrication, he checks the points that might have been missed before okaying the card.

On the second morning, the signed maintenance cards are checked against the service list in the office before being filed. If some have not been returned, the garage superintendents are asked why. Some-

(*Please turn to page* 16)

COLONIAL SAND & STONE CO., Inc.

TRUCK NO.____ GARAGE_____ DATE_____

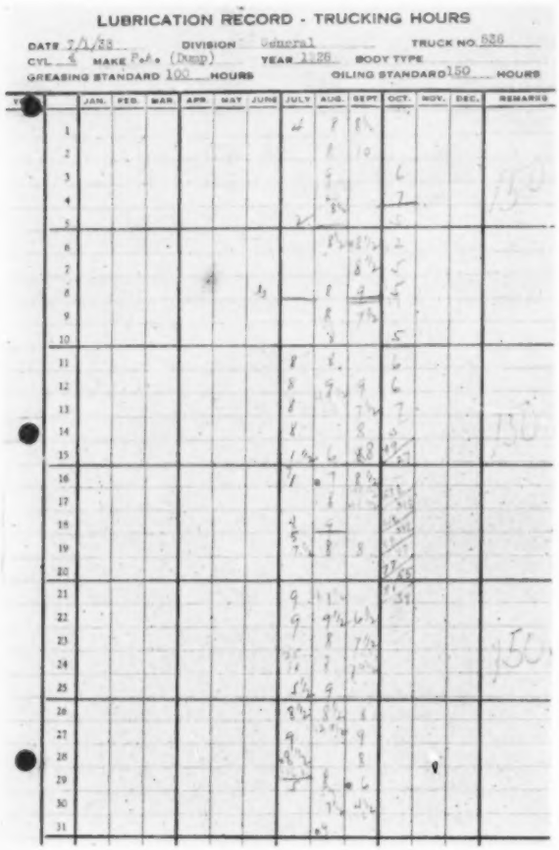
CHAUFFEUR'S NAME_____

| Dock | TIME | | Material Delivered | DELIVERED TO | |
|---|---|---|---|---|---|
| | Start | Finish | | Customer's Name | Address |
| | | | | | |

REPORT ALL DELAYS ON OTHER SIDE OF CARD

| THIS SIDE OUT TO REGISTER | REPORT ALL DELAYS BELOW |
|---|---|
| Each chauffeur to fill in the following information [see below] and sign card at end of day: | |
| Gals. of Gas taken today_____ | |
| Qts. of oil taken today_____ | |
| Report general condition of truck: | |
| SIGN_____ *Chauffeur's Name* | Shipper on last delivery of day to fill in time truck should arrive at garage. *Time*_____ |

**FORM I—DRIVER'S DAILY REPORT. . . .** Both front and back sides are shown. . . . This form is printed on manila tag stock and its actual size measures about 7 x 7 inches. . . . Besides serving as a record of driver's time and work done, it also provides, on the reverse side, a record of fuel and oil added during the day and permits the driver to indicate any units of the vehicle needing attention.



LUBRICATION RECORD - TRUCKING HOURS

DATE 7/1/38 DIVISION General TRUCK NO 836
CYL. 4 MAKE Ford (Dump) YEAR 1936 BODY TYPE
GREASING STANDARD 100 HOURS OILING STANDARD 150 HOURS

| | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | REMARKS |
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FORM II—LUBRICATION CONTROL. . . . A separate page is used for each truck, and kept in a loose-leaf book. Actual size of this page measures about 6 x 9 inches. . . . The text explains how it is used.

times the driver has forgotten; sometimes he is all worn out after a hard day.

It is not Colonial's idea to force drivers to do lubrication maintenance work if they are exhausted. All garages are, in such cases, notified of the "overdue" service jobs—so that they may be on the lookout for those trucks, to remind the drivers—and usually the third morning finds all of the cards in the office. But if any are still uncompleted on the fourth morning, Anthony Pope goes on the warpath. . . .

The system, you see, is entirely automatic; and perfectly simple. One clerk handles the whole job for 240 trucks in less than an hour a day, and no truck gets either more or less than the adequate lubrication maintenance it requires. Once a week, Mr. McGlynn checks through the control book to make sure that no truck has been overlooked.

For Diesel preventive maintenance, the control system provides also for injector changes and fuel-pump changes at regular intervals. This subject has been covered quite thoroughly in the January issue of this publication, but for the benefit of those who may have missed it, we will review some of the salient points.

When Diesel engine injectors are changed, as a part of Colonial's regular preventive maintenance program, replacement units are immediately substituted, in order to keep the vehicles in the shop as short a time as possible.

Colonial's preliminary Diesel operation, thus far, has revealed none of the so-called "maintenance bugaboos." "We have heard a lot about fuel-pumps and injectors, and since we have read that these units are *likely* to cause some trouble if not attended to, we are anticipating *something*, as in the Colonial fleet we try to lick our maintenance problems before they start," says Anthony Pope.

"Our present plan is to remove (for inspection, cleaning and replacement) all injectors every 800 operating hours; and each fuel-pump assembly every 3,000 hours. Figuring 25 days per month and 8 hours per day, this would give us 200 operating hours per month, so that the injectors would be removed at least once in four months. . . . By the same method of figuring, the fuel-pumps would be taken down every fifteen months, which seems like very efficient service, if we can do it.

"Reasoning this out on a mileage basis, if the trucks average 20 miles per hour, including traffic stops, etc., these figures would become 16,000 miles for the injectors and 60,000 miles for the fuel-pumps. We must reiterate that this plan is only a preliminary one; after further experience, these periods may be lengthened—or, if increased consumption of fuel or oil is noticed, they will be shortened."

Garage superintendents (of which Colonial has 12, in as many garages) are notified when each unit has reached its respective number of operating hours for attention to Diesel fuel equipment, as with the gasoline-powered equipment. "The actual removal and replacement of additional units is done by our own shop mechanics, in our own garages, under the supervision of the shop foremen. When the injectors are changed, the fuel-pump screens are cleaned at the same time, and all valve clearances are checked and adjusted," Mr. Pope continued.

"Extra injectors and fuel-pumps are available in all 12 of our garages. Those which are removed from the engines are sent to our central garage, where we maintain a completely-equipped test bench—equipment recommended and furnished by the makers of the

(*Please turn to page* 48)

LUBRICATION INSTRUCTIONS TRUCK NO._____

DATE GARAGE RECEIVED THE FOLLOWING INSTRUCTIONS_____

☐ GREASING
☐ OIL CHANGE
☐ "MIXER MOTOR" - OIL CHANGE

DATE WORK IS DONE_____

WORK DONE AT_____
(Garage Location)

WORK DONE BY_____
(Chauffeur to Sign Here)

WHEN ABOVE WORK HAS BEEN COMPLETED
SEND THIS CARD TO OFFICE

FORM III—LUBRICATION ORDER. . . . A card, printed on tagstock, and measuring about 4 x 6 inches, is given to each driver on the morning that the lubrication work is to be performed by him.

# This sturdy ALL-STEEL body takes lots of punishment

Harvey B. Lindsay, President of Dry-Zero Corporation and inventor of the Lindsay Structure method which is revolutionizing steel body building.

## It's a lightweight job, assembled to the exact size you need at no extra cost

● Here is a practical solution to the question, What kind of body will give me the most for my money?

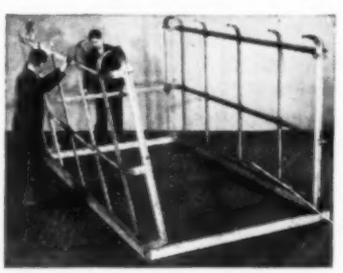
*Already, 257 fleets have decided that Lindsay Structure* ALL-STEEL *bodies are the answer!*

They are assembled to the exact size you need from Ls steel parts. Road tests show they stand up under the wracking strains of heavy loads, rough roads, and accidents. Yet they are remarkably light, due to the patented Lindsay Structure assembly methods. Repairs are made by substituting inexpensive standard parts.

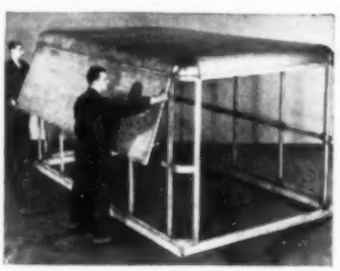
Remember! There are no premium charges for this ALL-STEEL, lightweight body.

You should find out how well Lindsay Structure bodies fit your needs. Send the coupon for a free copy of the Lindsay Structure Bulletin. *Don't wait until you need a new body! Send the coupon now!*

**1.** Parts for Lindsay Structure bodies are die-formed by standard mass production methods in 4000 sizes, so that any size body can be built.



**2.** Side framing is assembled on the floor, then raised into place and bolted together. No cutting or fitting. No special tools are needed.



**3.** Panel sheets are set into flanged frames. They are "drawn" flat under even tension to take wracking stresses from the framing.

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Use of Lindsay Structure for this refrigerated meat body reduced dead weight 800 lbs. Insulated with Dry-Zero. Built by San Antonio Body Co. for Roegelein Provision Co., both of San Antonio, Texas.

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*NOW! Learn about money-saving Lindsay Structure truck and trailer bodies.*
**USE THIS COUPON**

DRY-ZERO CORPORATION: Without obligation, send the free Lindsay Structure Bulletin and complete information about Lindsay Structure truck and trailer bodies.

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Company .....

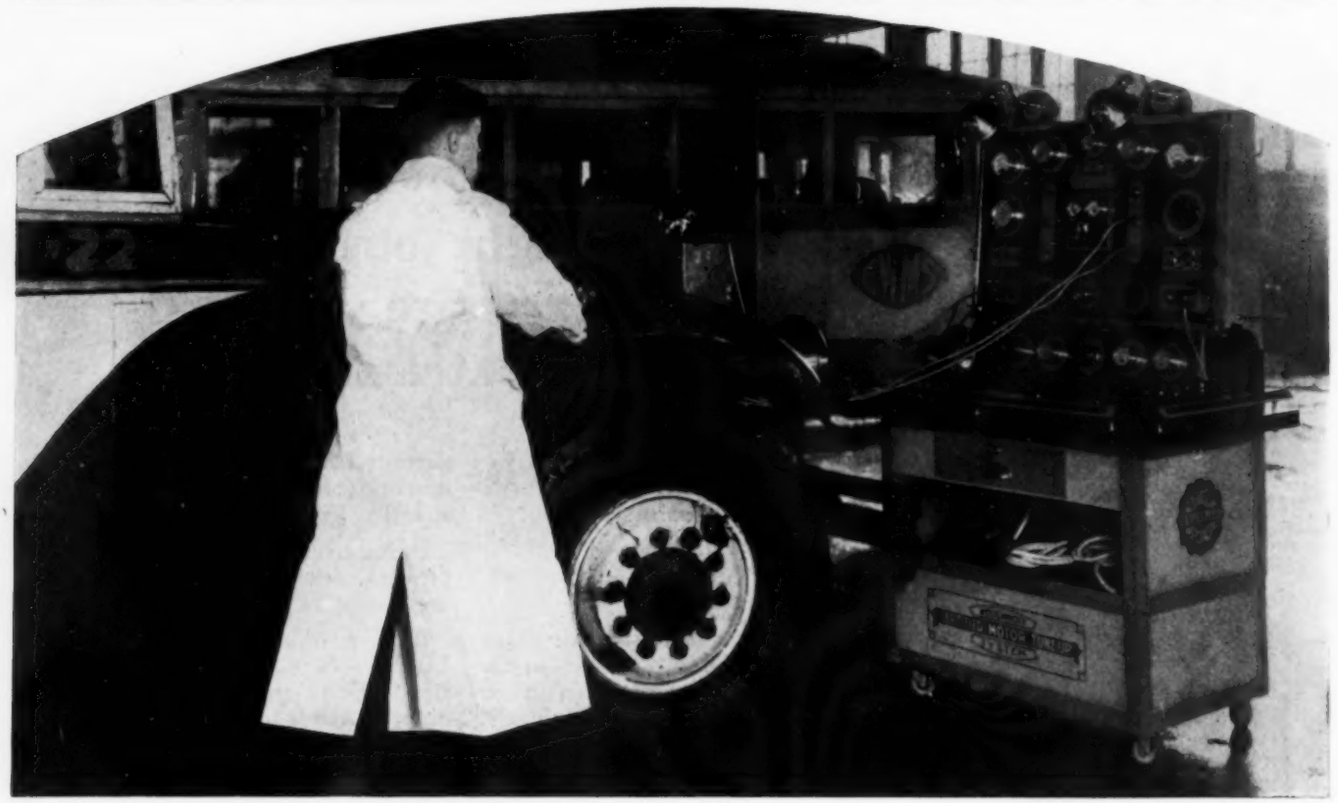
Street .....

City, State .....

1240

**MAIL TODAY** ● **DRY-ZERO CORPORATION**
222 North Bank Drive, CHICAGO — 60 East 42nd Street, NEW YORK

## A "Fleet Owner" Survey on Electrical Units



# IGNITION

### EXPERIENCES IN 244 FLEETS

•

By H. Clay Fischer, Editor

ROAD failures, due to faulty ignition or electrical equipment, CAN be almost entirely eliminated in any fleet, if proper inspection is made periodically and some form of preventive-maintenance is followed. . . . That is the concensus of opinion among 244 fleet maintenance men, who were good enough to participate in our "Ignition Maintenance" questionnaire, which was published in the October issue of this publication.

Other conclusions drawn, after careful perusal of the returns, indicate *(1) That standard-equipment coils, condensers, points and generators are scarcely good enough to withstand the rigors of hard fleet service. (2) That ignition points seem to be the chief offender, with spark plugs and generators next on the list. (3) That many fleet men are willing to pay a higher price for "better than standard" ignition apparatus. (4) That most fleet ignition work is done by fleet owners, right in their own shops. (5) That authorized distributors and automotive jobbers are the chief sources of supply. (6) That original-equipment makes (such as Delco, Mallory, Bosch and Auto-Lite) seem to be preferred for replacement, rather than the other makes of so-called "standard" replacement parts. And (7) That most fleet operators specify the makes of ignition parts wanted, when ordering for replacement.*

Now that you have at least an inkling as to what this survey is all about, perhaps you will be interested in the following resumé of our findings in this direction. You will remember, of course, that those 244 fleet men who responded to the questionnaire, have already received their own private-and-personal copies of the *confidential* information which it produced, and that you fellows will have to be satisfied with this somewhat emasculated version.

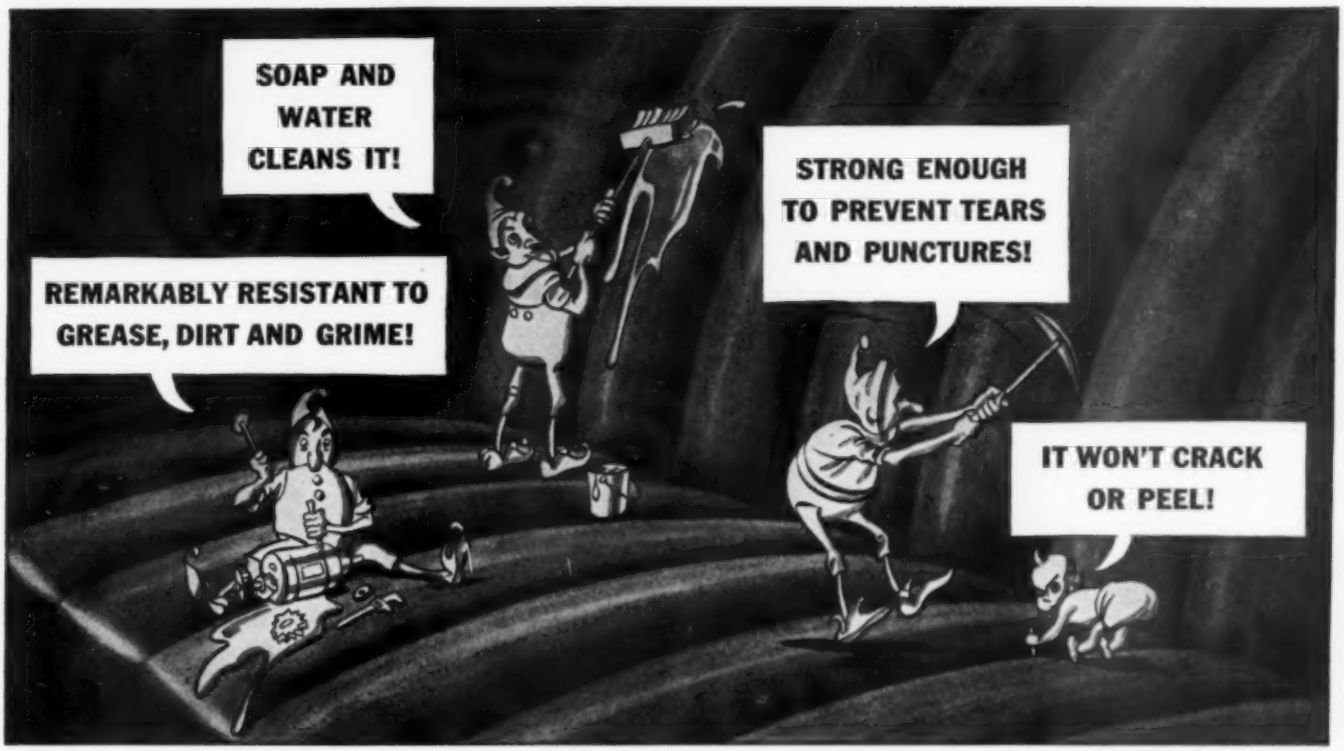
In asking the first question, *"Where do you have your ignition work done?"* it was revealed that 215 fleet operators do all or part of their own ignition work in their own shops—105 doing all of this work, and 110 operators doing some of their own and farming-out some of it. In the other 29 fleets, *all* ignition and electrical work is farmed-out to outside shops. (That's how we arrived at Conclusion No. 4).

It is only good common-sense to assume that *some* sort of electrical test equipment is needed by those 215 fleets which do their own electrical work, and in asking the next question, *"What equipment do you use?"*, we learned the following: 48 fleets have factory-built motor analyzers; 7 fleets are equipped with home-assembled motor analyzers; 9 fleet shops have factory-built electric test-benches; 27 fleets have home-made

(*Please turn to page* 20)

# Whether You Own 1 or 100 Trucks...

# HERE'S HOW CAVALON* SAVES YOU MONEY!


SOAP AND WATER CLEANS IT!
REMARKABLY RESISTANT TO GREASE, DIRT AND GRIME!
STRONG ENOUGH TO PREVENT TEARS AND PUNCTURES!
IT WON'T CRACK OR PEEL!

TESTS on the road . . . in actual service . . . prove that for outstanding durability and economy you can't beat CAVALON heavy-duty upholstery fabric. This rugged material resists general abrasive wear, edge wear, cracking and peeling. It has sufficient strength to prevent tearing and puncturing; and because it is comfortable and has good seating "properties," the driver can keep his mind on the road and not on the seat.

Why does CAVALON give longer wear than other heavy-duty upholstery fabrics? The answer to that is du Pont's special "case-hardening" process by which it is made. CAVALON'S surface coating is processed with a patented chemical treatment that makes it unusually resistant to flexing and wear, yet does not harm its leather-like characteristics and pliability.

CAVALON is available in many good-looking colors that won't crock, bleed or fade. And the large number of authorized CAVALON dealers located all over the country make it easy for you to get prompt service. Or for samples and complete information, write E. I. du Pont de Nemours & Co. (Inc.), "Fabrikoid" Division, Fairfield, Conn.

DU PONT CAVALON TRADE-MARK

*"Cavalon" is du Pont's registered trade-mark designating its rubber-coated upholstery fabric.

*Your shop or upholsterer will get rapid, dependable service from these authorized* **CAVALON** *distributors*

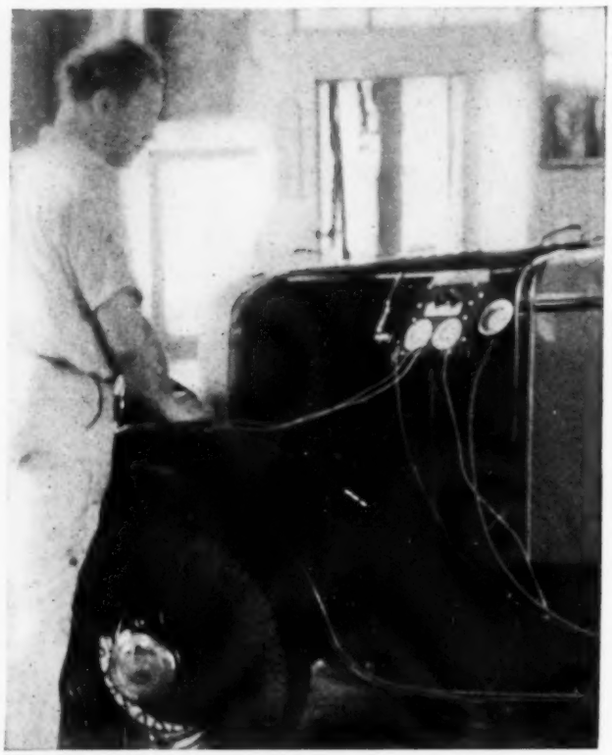
| | |
|---|---|
| ALBANY, N. Y. ..... E. E. Davis Co., Inc., 56 Central Ave. | MEMPHIS, TENN. ..... Arthur Fulmer, Inc., 260 Monroe St. |
| AUSTIN, TEXAS ..... Walter Tips Company, Second and Colorado Sts. | MILWAUKEE, WISCONSIN ..... Gebhardt, Inc., 213 N. Broadway |
| BOSTON, MASS. ..... David Shapiro Company, Inc., 758 Commonwealth Ave. | MINNEAPOLIS, MINN. ..... National Upholstery Supply Co., 400 First Ave., N. |
| BRIDGEPORT, CONN. ..... Bridgeport Fabrics, Inc., 194 Holland Ave. | NEW ORLEANS, LA. ..... New Orleans Trimming & Supply Co., 840 Baronne St. |
| CLEVELAND, OHIO ..... The Ingraham Supply Company, 575 Broadway Avenue | NEW YORK, N. Y. ..... Specialty Auto Fabrics Corp., 229 West 58th Street |
| DENVER, COLORADO ..... A. G. Seaver, 1855 Welton Street | OKLAHOMA CITY, OKLA. ..... M. G. Davis Supply Co., 609-611 W. Grand Ave. |
| FORT WORTH, TEXAS ..... M. G. Davis Supply Co., 608-614 Commerce Street | PORTLAND, ORE. ..... George Lawrence Company, 308 S. W. First Ave. |
| HOUSTON, TEXAS ..... C. Jim Stewart & Stevenson, 1719 Preston Avenue | RICHMOND, VA. ..... Benj. T. Crump Co., Inc., 1310 East Franklin Street |
| KANSAS CITY, MO. ..... C. R. Coffey Company, Inc., 1615 Oak Street | SAN FRANCISCO, CALIF. ..... Scovel & Sons Company, 1133 Post Street |
| KNOXVILLE, TENN. ..... R. T. Clapp Co., 401-407 N. Broadway | SEATTLE, WASH. ..... Automobile Trimmers Supply Co., 1424 Tenth Street |
| LOS ANGELES, CALIF. ..... Lindsey & Hall, 1036 So. Hope Street | TULSA, OKLA. ..... Tulsa Trimmers Supply Company, 1325 E. Sixth Street |

test-benches; 118 fleets use *separate* test instruments, such as volt-meter, coil-tester, timing-lamp, etc.; and 6 fleets (the balance of those claiming to do their own work) do not have any equipment; Lord knows how they do it!

The relative popularity of *separate* test instruments, when used, was revealed by the answers to the next question, which asked, *"If you use separate test instruments, which ones do you have?"* . . . Compression-gauges and vacuum-gauges led the list, with 131 and 132 votes, respectively. Next in popularity is the spark-plug cleaner (not really a test instrument), which is found in 127 shops. Spark-plug testers, however, are found in 110 shops. . . . Volt-meters and ammeters are used by 115 fleets; Neon timing-lamps by 113; coil-testers are found in 91 fleets; while 85 fleets also have condenser-testers. . . . Other equipment used separately included the following answers: R.P.M. indicator—46; Point synchronizer—42; Adjustable spark-gap—55; Contact-spring tester—23.

In reviewing the above listing, it is well to remember that the test equipment listed refers only to those 118 fleet shops using *separate* test instruments, and perhaps also a few fleets which have built home-made test-boards. It is natural to assume that most of the above instruments are also built into the previously mentioned factory-built analyzers and test-benches; however they are *not* included in the above tabulation, which only refers to separately-used instruments.

From the foregoing, we see that fleet shops seem to be *pretty* well equipped for making electrical check-ups, although there is still room for improvement—and still a fertile market for enterprising shop equipment manufacturers who would like to sell their wares. A few fleet men remarked that the prices of certain equipment seem somewhat prohibitive. Perhaps they have not been acquainted with *all* makes offered, or else they have not been educated to appreciate the value of good test equipment—although, Heaven knows, we have done our best in this regard.



FACTORY-BUILT motor analyzers seem to be getting popular among fleet operators. . . . In 244 fleets surveyed, we find 57 factory-built motor analyzers and electrical test-benches used.

And now we come to the trouble-makers. We asked, *"Which electrical unit on the vehicle gives you the most trouble?"* . . . Although we specified that only *one* unit should be checked, several operators checked three or four, and as near as we could make it out, ignition points seem to be the chief offender, with spark plugs and generators second. Here are the figures as we found them: Ignition Points—121; Spark Plugs—26; Generators—26; Condensers—17; Starting Motors—11; Spark Coils—9; Voltage Regulators—7; Distributor Caps—5; Automatic Advance—3; High-Tension Wire—2; Generator Cutout—1; Starting Switch—1.

In reviewing the above figures, it was observed that although ignition points were mentioned as most troublesome by a large majority of the operators participating in this survey, this is due, probably to the fact that points generally need attention more often than other electrical units, and it does not necessarily follow that they are *continually* causing trouble. A perusal of later questions, in which the mileage obtained from various electrical units is discussed, will reveal that points seem to give a definitely lower mileage than coils or condensers. Perhaps that's why they were mentioned so frequently as "troublesome."

On the other hand, some of the remarks which were penned-in, seem to indicate that fleet men feel that points should be made of better materials and should last longer, some operators even stating that they would be willing to pay a premium price for *better* quality points, if they could be assured that they would be longer-lived. But most of them still go back and re-order original-equipment points as replacements—so figure it out for yourself.

It was also observed, among fleets which make many stops per day, such as those engaged in door-to-door delivery, that (*Please turn to page* 22)

IGNITION POINTS seem to be the chief offender in causing fleet maintenance men to reach for the aspirin bottle. . . . They seem to last but 15,000 miles (avg.) and need frequent attention.

# The Job You Want Done Is Being Done

*with* CUMMINS Dependable DIESELS

*for Example*

**Bekins Van & Storage Co. operates 4 Cummins Diesel-powered tractor and semi-trailer units between Los Angeles and Texas. Hauling a gross load of 50,000 pounds, each unit averages 7 miles per gallon of fuel oil on the 4,000-mile round trip. Cummins Dependable Diesels power 95% of the nation's long-line, heavy-duty trucking operations. Operators get larger payloads—extra mileage—cut maintenance and service with Cummins Dependable Diesels.**

CUMMINS ENGINE COMPANY • COLUMBUS, INDIANA

starting-motors, starting-switches and starter-drives demand more than their share of maintenance attention. Which is just as it ought to be, we think, because many fleets that we know will average several hundred starts (of the engine) per vehicle, per day—and that's a lot to expect from *any* piece of electrical equipment; don't you think so? And besides, it's probably a lot cheaper to exchange a starting motor once in a while, than to idle a flock of engines all day long; so they shouldn't feel *too* badly about it.

Next we suggested that fleets answer this one: *"What is the average mileage obtained from coils, ignition points and condensers, respectively?"* . . . On coils the high average was 300,000 miles—a few fleets declaring that sometimes coils will last for the life of the vehicle; the low mileage average for coils was 5,000 miles—something wrong there. . . . Averaging up all of the figures received, we find the average mileage obtained from spark coils, by fleets participating in this survey, to be 62,625 miles per coil. . . . So, there can't be very much wrong with present-day coils.

SPARK PLUGS were also mentioned by the fleets surveyed as being a cause of trouble. . . . However our separate survey on this subject, made several months ago, will tell the complete spark-plug story.—Ed.

Points, as before pointed out, did not seem to fare so well. The high figure for point life was only 50,000 miles, while the extreme low was 3,000 miles. . . . The average figure on points was 15,510 miles per set, which seems quite in line with actual fleet experience picked up here and there, previously, by the writer. . . . However, points are cheap and easy enough to replace (in most instances) and if a preventive-maintenance schedule is set up on some *reasonable* mileage or time figure, points can easily be eliminated as a producer of road breakdowns. . . . But you must *apply* preventive maintenance—not just set up a schedule and fail to follow it out.

Condensers have always been considered more-or-less mysterious, and we'll bet that there are still many fleet men who do not know what a condenser is for. Moreover, it's difficult to predict in advance just when one will lay down on the job, and unless you know your stuff, you can spend a half-day checking carburetor, spark-plugs, distributor, ignition wire, etc., before you finally discover that the condenser is faulty. It seems to us that it might be a good idea to keep a stock of spare condensers handy—and even carry an extra one on each vehicle. At the first sign of hard starting, missing or erratic engine operation, it would be relatively simple to substitute a condenser of *known* quality, and work from there on. In many cases you will find this to do the trick and save a lot of time "hunting" for trouble.

But, we seem to be straying from the subject. Average mileages obtained from condensers, as reported in this survey, ranged from a low of 5,000 miles to a high of 200,000 miles, the *average* of the averages being about 35,000 miles per condenser. To us it seems that condensers should be built to last as long as the coil itself, it being simply a matter of insulation. However, since as with points, condensers are cheap enough to replace periodically, a preventive-maintenance set-up on condensers, by means of which they are replaced at reasonable intervals, whether they seem to need it or not, would also eliminate many electrical troubles on the road. Just try it sometime and see for yourself.

The equipment makers will perhaps be interested in the next question, which asked, *"Do you find original-equipment coils, points and condensers satisfactory?"* . . . 111 fleet men remarked that they "could be better", which perhaps does not mean that they are *entirely* unsatisfactory; rather, as in all things, they seem to express the conviction that there is room for improvement. . . . On the other hand, 125 fleet operators reported original-equipment as "satisfactory", while 8 did not answer the question.

The next question somewhat clarifies the previous one. We asked, *"Which lasts longer or gives more mileage—original-equipment or 'replacement' ignition parts?"* . . . While we are not one of those people who usually goes around shouting "Genuine Parts" (in our position we must be absolutely impartial), it is interesting to note that most fleet men seem to prefer genuine original-equipment electrical replacements, rather than the so-called "standard" type of replacement part. Here are the figures, and please don't blame them on anything we have done: "Original-equipment parts last longer"—129; "Replacement type parts last longer"—70; "No Answer"—45. . . . And *that's* where we obtained Conclusion No. 6.

The next question asked for *makes* of coils, condensers and points *preferred* for replacement. As we told you previously, the original-equipment makes were mentioned almost to the exclusion of the "replacement" makes. We can't tell you here which one make is most popular among fleet men, but if you get your slide-rule and figure out which particular make is used on most truck engines, you will have the answer, which we have reserved only for those fleets who participated in this survey. But it shouldn't be difficult to guess. Sorry, but we can't give it to you here; perhaps you don't care about it anyway?

That fleet maintenance men are fussy when ordering ignition parts, and really *do* care what make they

(*Please turn to page* 50)

# Here's how to BOOST SALES and ADVERTISING VALUE!

A FRUEHAUF TRAILER finished with KEM TRANSPORT ENAMEL

## Style and Color your Units with KEM!

Ever ask yourself what kind of impressions your fleet makes on John Q. Public when it travels Main Street or Metropolis? Impressions are made every time one of your units rolls by. If each truck is color-styled and maintained with S-W Kem Transport Enamel you can be sure it is a two-fisted travelling advertisement that boosts sales all along the line. The reasons are simple. Kem Transport colors are clean in tone, vibrant and attention-getting. Kem produces a smooth, sharp, porcelain-like lustre that resists soiling and washes easily. It is a modern, highly perfected fleet finish that is rugged and durable. It helps you keep your fleet looking its best longer—stretches out the intervals between repaints. Why not give Kem a try on your next paint job? The S-W Paint Technician is also at your service on any painting problems. Write The Sherwin-Williams Company, Cleveland, Ohio, and all principal cities. No obligation.

**SHERWIN-WILLIAMS KEM TRANSPORT ENAMEL**

# BUS TUNE-UP

## DEMONSTRATES VALUE OF PROPER EQUIPMENT

By Errol J. Gay,

*Engineer, Automotive Technical Division,*
*Ethyl Gasoline Corporation,*
*New York, N. Y.*

EXECUTIVES of the transit industry had an opportunity to study, first-hand, the assorted ills and ailments a bus is heir to, at a clinic session of the American Transit Association which was held in Los Angeles recently.

The chief purpose of the demonstration was to show that there is a place for a chassis dynamometer (Photo 1) in the inspection line of a large maintenance garage.

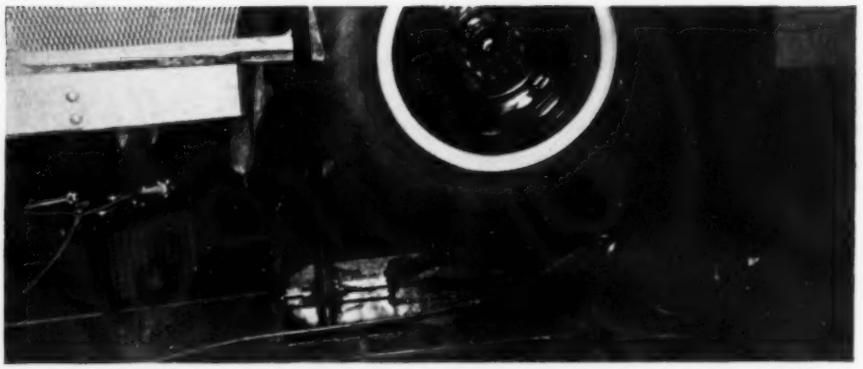
A Twin Coach unit was supplied for this test by the Los Angeles Motor Coach Company. This unit had been deliberately put out of adjustment, so that a more interesting demonstration might be made.

Four old spark plugs were installed—not unusual examples, but similar to plugs which may frequently be taken from engines. One had a cracked porcelain; another one had the electrodes rather badly burned; the third showed a rather heavy oxide coating on the tip of the insulator; and the fourth plug was heavily coated with carbon.

An adjustable main jet (Photo 2) was installed in the carburetor so that air-fuel-ratio settings might be changed easily and quickly and thus not delay the demonstration. This adjustable jet was purely an expedient and in no way was a substitute for a fixed main jet.

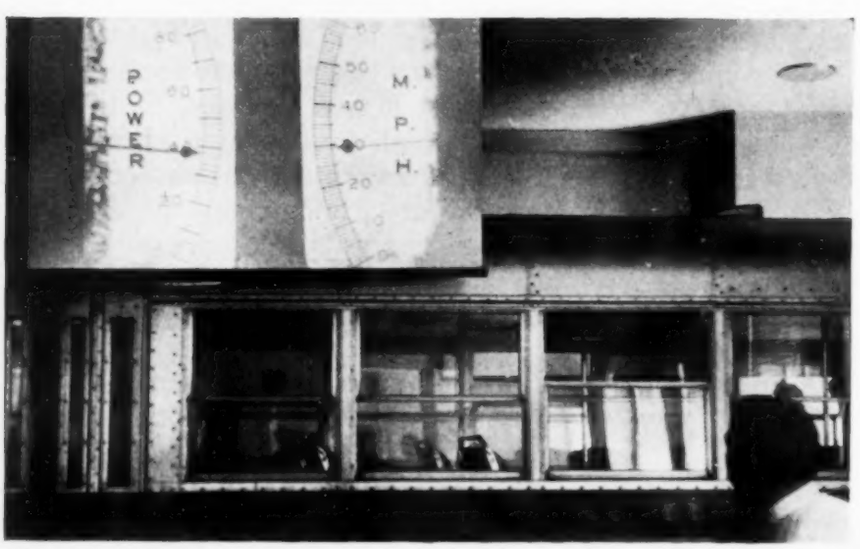
The timing had also been retarded past maximum power, a condition often seen in buses being brought in for routine, three-to-five-thousand-mile inspections.

As a start for the demonstration the bus was warmed up and a power reading taken at 25 miles per hour.



1. The rear wheels of the bus were first placed on an absorption dynamometer.

2. Adjustable main jet was installed on carburetor, to be used only for tests.



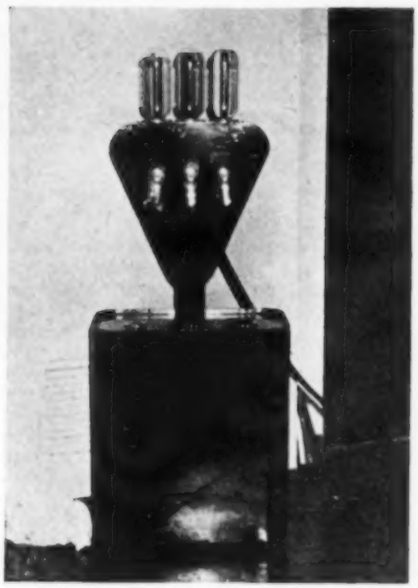

3. "Power" and "m.p.h." scales were projected on a screen above the bus, as shown.

This was recorded on the blackboard and the spark plugs were then changed. At the start of the test the reading was approximately 33 power-units but after the spark plugs were changed, a gain of five power-units was noted (Photo 3).

The carburetor air-fuel-ratio (Photo 4) was then adjusted to give maximum power. The setting as found for the demonstration was too lean for best power; in fact, it was slightly too lean for satisfactory operating conditions so that the power gain shown was 15 power-units.

During the demonstration it was pointed out that in city bus operation, maximum power might not always be maximum economy and there had to be a compromise be-

4. Analyzing the exhaust gas. . . . The big analyzer on the table is the master instrument. The small (flat) one is wired to a projector for demonstration purposes.



5. A special fuel-dispenser made up for the tests. . . . It supplies three different types of fuel to the engine, for determining exhaust-odors with various fuels.

tween the two. It was also pointed out that the chassis dynamometer was probably *not* the best place to calibrate a carburetor. However, once a satisfactory carburetor setting has been established, it then can be easily and readily checked on a chassis dynamometer.

After the spark plugs and carburetor setting had been established, the spark was reset for maximum power, and another five power-units was gained, so that the final reading was 58 power-units at 25 miles per hour, wide-open throttle, rather than 33 power units.

It was interesting to note that in setting the spark on this particular bus, maximum power gave only a very light knock. If the spark was advanced sufficiently to give audible knock, power dropped off slightly. Special mention of this was made to the audience because many operators think that the spark has to be set so that knock is heard in order to obtain full power.

After this first series of tests was completed, it was announced that a demonstration would be made of some of the practical causes of tail-pipe odor. The first move in this demonstration was to disconnect the fuel system of the bus. Incidentally all previous tests had been made on the fuel in the tank of the bus.

The purpose in going to the dispenser system (Photo 5) was twofold. First, there was no desire to cause any doubt concerning the satisfactory operation of the fuel being used by the Los Angeles Motor Coach Company, and second, special fuel was needed in order to demonstrate the work clearly.

A flexible tubing was fastened to the tail-pipe and the end of the tubing was brought in under the bus right on under the noses of the front rows of the audience.

The first fuel to be used was a commercially available gasoline in the Los Angeles area having an end-point of approximately 365 deg. F. The bus was speeded up to 40 miles per hour and allowed to decelerate, thus simulating to some degree actual deceleration on the street. With the light fuel there was no smoke and very little odor.

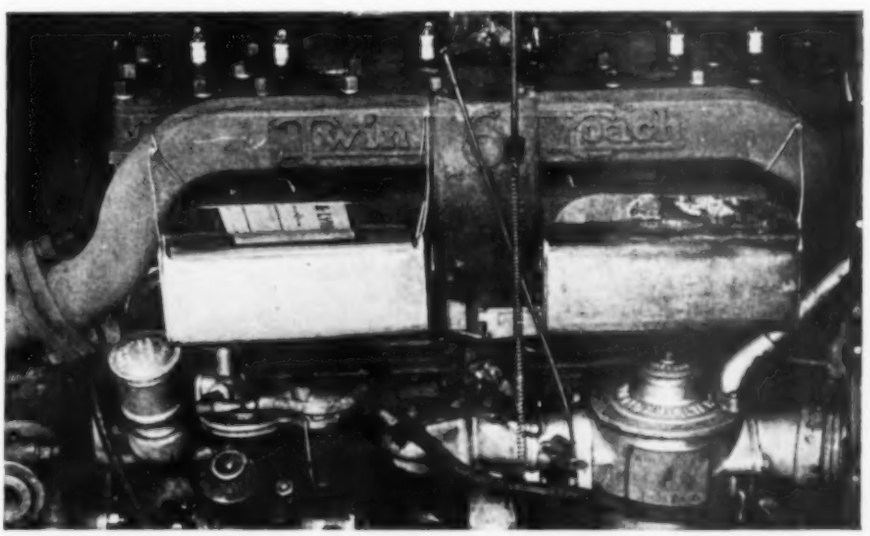
The fuel supply was then changed to another commercially available fuel in the Los Angeles area having an end point of 420 deg. F. When deceleration runs were made with this fuel, there was a puff of smoke after each deceleration and also a noticeable odor.

To demonstrate the effect of cool manifolds, a tin box containing dry ice (Photo 6) was placed around the manifold. The dry ice served the purpose very nicely and chilled the manifold sufficiently to make an excellent demonstration.

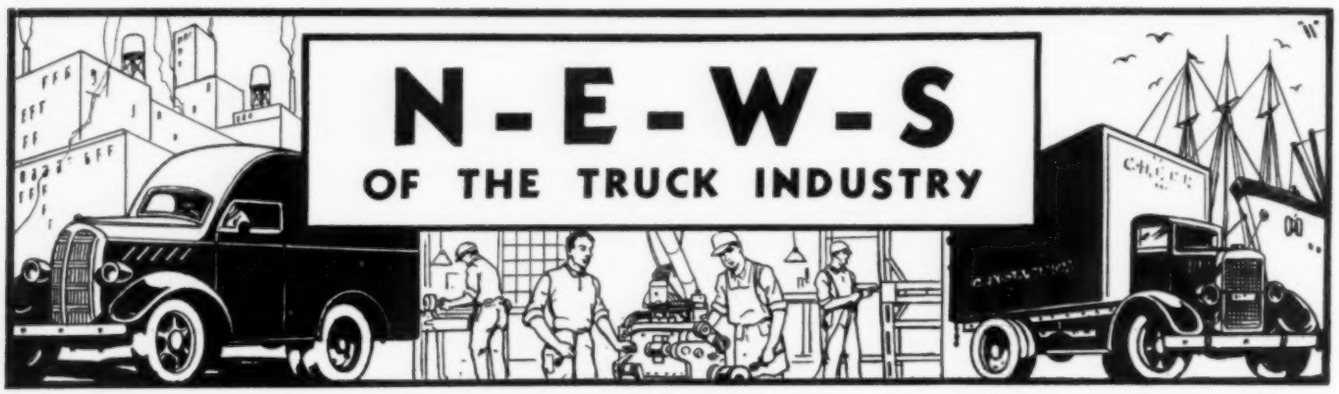
The demonstration was made first on the heavy fuel, which gave off a large volume of smoke after each deceleration, with plenty of smell. The idle was then enrichened and it was pointed out how essential is proper attention to the idle adjustment, as there developed a further increase in smoke, particularly in density, with more odor.

Leaving the dry ice on the manifold, a switch back to the light fuel was made with resultant decrease of intensity and volume of the smoke and also the amount of odor. Adjusting the idle back to normal lean idle, it was again possible to reduce the volume and intensity of smoke and odor.

These demonstrations showed clearly the three important fundamentals of tail-pipe odor elimination: i.e., the effect of gasoline volatility, intake manifold temperature and carburetor maintenance.



6. Chilling intake manifold with tin cans containing dry ice, for odor test.




### Retail Auto Sales Up 46 Percent

AUTOMOBILE retail sales in the United States during the 10 months ended with October showed an advance of 46 per cent over the same period of 1938, according to the Automobile Manufacturers Association. . . . During the 10 months, 2,624,738 motor vehicles were delivered to consumers. Passenger-car deliveries totaled 2,191,683 units, representing a gain of 48.8 per cent. Commercial vehicles were up 35 per cent, with a retail sales total of 433,055 units.

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### G. M. Truck Sales Show Increase Over '38

SALES of General Motors Trucks during 1939 (to consumers in the United States) have shown a definite increase over those of 1938 according to J. P. Little, vice-president and director of sales. . . . Monthly increases in sales, up to and including September, averaged 64 per cent over the corresponding period of 1938. . . . Sales of trucks to state and federal government agencies were also well above those of 1938, showing an increase of 82 per cent, according to Mr. Little.

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### Studebaker Deliveries Twice as Many

RETAIL deliveries of Studebaker cars and trucks for the first ten months of 1939 were twice as many as those of the same period in 1938. . . . 71,813 units were delivered up to November 1st this year. . . . Retail deliveries of Studebaker cars and trucks in October were the largest of any October in the history of the company, amounting to 9,866 units as against 6,451 last year—an increase of 53 per cent.

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### Besler to Market Own Power Brakes

BESLER Power Brakes, used on truck equipment for many years, have heretofore been produced under license agreement. . . . Besler Systems, their inventors and engineers, will now be the sole manufacturers and marketers, according to a recent announcement. . . . An attractively illustrated catalog on the Besler Power Brake System is available, free, by addressing Besler Systems, Power Brake Division, Oakland, Calif. Or, you may write to the same company at Davenport, Iowa, or 143 Liberty Street, New York, N. Y.

### Fleet Men Attend Maintenance Conferences

FLEET MEN from all parts of the middle west turned out in large numbers to attend a conference on operation and maintenance problems at the Knickerbocker Hotel in Chicago last month. . . . More than 225 men representing fleet operators, oil companies and manufacturers were present during the five days of the conference, which was arranged by Errol Gay of the Ethyl Gasoline Corporation. . . . Mechanical troubles, their causes and cures, engineering principles, fuels, lubricants, compression-ratios and other similar topics were discussed.

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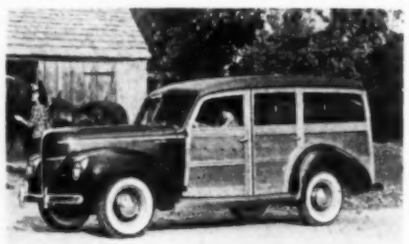
### Ford Announces Two New Station Wagons

THE FORD Deluxe Station Wagon has recently been added to the 1940 line. In addition to the Deluxe job, shown here, there is also a "standard" Ford V-8 Station Wagon. . . . The former is intended for higher



class types of transportation, while the latter job was designed primarily for use by public utility and engineering crews, exploratory expeditions, inter-plant transportation of workmen, and similar uses. . . . Both jobs will seat eight people in comfort. They feature all of the improvements incorporated into the 1940 Fords. Bodies are of selected hard maple. Seats are upholstered in genuine leather.

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### Chevrolet Gains 39.9 Percent in October

CHEVROLET dealers delivered at retail 49,639 units during the month of October—a gain of 39.9 percent over October, 1938. . . . Truck sales for October, 1939 were 15,325 units—a gain of 11,189 over the 4,136 commercial cars sold in October, 1938. . . . Continuance of this upward trend is predicted by Chevrolet officials, as Chevrolet plants swing into full production on the 1940 models.

### Chevrolet Truck Organization Optimistic

PROSPECTS for substantial gains in the sale of commercial cars and trucks are better than for several years, Chevrolet officials recently advised a gathering of over 200 members of its wholesale truck organization. . . . Chevrolet's truck sales of 165,000 units in 1939 will be exceeded in 1940, is the opinion of W. E. Fish, truck sales manager.

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### Gunite Drums to be Sold Direct to Fleets

A NEW selling plan, in which Gunite brake drums for trucks, trailers and buses, will be sold directly to fleet operators, is announced by Gunite Foundries Corporation, Rockford, Ill. . . . The new Gunite plan is said to offer savings from 20 to 60 per cent over previous merchandising plans. . . . Direct factory representatives are being appointed, to further launch this new merchandising plan. . . . For details, write to Gunite Foundries Corp., Rockford, Ill., mentioning this announcement in FLEET OWNER, if you don't mind.

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### White (Canada) Promotes Gerow

ACCORDING to an announcement by L. M. Hart, president of The White Company, Limited of Canada, Frank T. Gerow has been appointed branch manager of the Toronto Branch. . . . Mr. Gerow's connection with White in the Canadian field has been a long and extensive one. He has been connected with White sales activities in both Montreal and Toronto for a number of years.

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### G. M. Diesel Truck Sales Increase

STEADY progress in the Diesel powered truck field is reported by General Motors Truck & Coach division. . . . From February 1st of this year, up to October 15th, the company has received orders for over 300 Diesel-powered trucks, many of them from fleet users who placed repeat orders. . . . In addition, a great many GMC Diesel engines have been sold for replacement purposes, it is announced, since the factory has a program of engineering these installations into any make of vehicle. . . . The wide variety of vocations now being served include oil companies and refineries, meat packers, long distance haulers, railroads, chain grocers, creameries, etc.

## THIS COUNTY HIGHWAY FLEET BOASTS DIESELS,

# RADIO *and* SNOW-PLOWS

NOW THAT Winter is just around the corner, this story of snow-plows, Diesel engines and radios should be timely, especially since there is so much of interest in the units used, and the fact that "history has been made" in an operation said to boast being "first" in putting radio to work in county highway truck use.

This four-wheel-drive Autocar truck with snow-plow equipment, in fact, saved the life of a woman who was critically ill in the north end of Brown County, Wisconsin, last Winter. Her peril did not grow out of the fact that, *"Like the famous young man in Quebec, she was buried in snow to her neck,"* but her situation was somewhat similar, owing to the fact that heavy drifts completely isolated her home. Her life was saved because the truck was equipped with a one-way radio which ties in with the Brown County Police Department.

It seems that the woman's family was able to get word out to the doctor, presumably by telephone, but that the physician was absolutely unable to reach her abode, until after he had gotten in touch with George J. Cormier, veteran Highway Commissioner of Brown County, who was able to quickly and easily solve the acute problem by telephoning to the police department and telling them to instruct his nearest snow-plow truck, then out on the highway, to drop the work in hand and go immediately to open the road, for the doctor, from the main highway to that woman's home.

The possibility of saving life in that manner was not the reason why Mr. Cormier equipped his fleet of four-wheel-drive Autocar snow-plow trucks with automobile radios. His purpose was to be able to communicate with his trucks wherever they might be at work in the county, and to direct their movements from his Green Bay headquarters.

Each truck in the fleet has its own number, by which it is called from police headquarters. Sometimes the radio instructs the driver to go to the nearest telephone and call his headquarters but, if Mr. Cormier is sure that the men on the truck in question know the road where he wants them to go, they are instructed directly by radio where to go and what to do, and to

(*Please turn to page* 52)

# CHICAGO **TRUCK SHOW** a SUCCESS

THE NATIONAL Motor Truck Show enjoyed a nine-day run at the Navy Pier in Chicago last month. Enthusiastic endorsements of the Show, by its more than seventy-five exhibitors, have already assured a Truck Show next year on a bigger and broader scale, according to show executives.

Attendance at the Truck Show exceeded all expectations, according to John F. Winchester, president. Attendance, he reported, grew with each succeeding day of the exhibition. Mr. Winchester also stated that the Motor Truck Show this year has been attended by a greater number of *serious* visitors and also by more people identified with the transportation industry, than at any time in its six-year history.

Previously, the Truck Shows had been held in New York City and Newark, N. J. Chicago was chosen this year because of its geographical location in the center of the transportation industry in the United States. It is likely that the Show will be brought back to Chicago in 1941, it is stated.

Taylor D. Soper of Chicago, Executive Secretary of the Illinois Road Builders Association, addressed the Show visitors on the last night, speaking of the relationship of the highway construction industry to the motor truck industry. He told how road builders of the nation are attempting to provide better arteries for the transport haulers by protecting road funds. Soper was the last of a series of speakers that have appeared nightly at the Show.

During the last four days of the Show a great many members of the petroleum industry were in attendtendance, due to the fact that the American Petroleum Institute held its convention in Chicago simultaneously with the latter half of the truck exhibition. The National Tank Truck Association also met during the National Motor Truck Show, and members of this organization were also prominent at the exhibit.

On display at the Navy Pier were a number of interesting new developments of interest to the petroleum field. These included special tank-trucks and also light types of Diesel and modified Diesel designs of engines.

Executives of the companies exhibiting were generally outspoken in their praise of the general success of the exhibits. It was stated that while attendance on the opening days was relatively low, the Show gathered momentum, as well as patronage, throughout the week and among those who came to study the new equipment on view were some of the largest fleet operators in the mid-west.

It has been reliably reported that certain exhibitors, particularly among the truck manufacturers, are expecting to close major transactions as a result of their displays on this occasion.

The management of the Show is already in receipt of reservations for next year's exhibit and have concluded the Show this year with the distinct feeling that it has been an unqualified success.

"From our contacts with each of the exhibitors at the Truck Show," reports Warren F. Beck, assistant general manager, "we learned that the majority were entirely satisfied with the results obtained, in every respect.

"While the attendance was not one of quantity, it was definitely one of *quality* throughout, and as

(*Please turn to page* 52)

ENTRANCE to the Sixth Annual National Motor Truck Show held at Chicago's Navy Pier. . . . Decorations this year were of unusually appropriate richness and design.

# MODERN BRAKES

## ARTICLE 1

By J. A. McLaine,
*Engineer, American Brakeblok Division, Detroit, Michigan*

A CAR, truck, or bus, as we all know, consists of a body and chassis mounted on wheels, plus some sort of power-plant to make the vehicle move. Naturally, the equipment used to make a motor vehicle move is very important and we therefore hear a great deal of talk about the horsepower of the motor and the top speed of the vehicle. We also hear a great many claims regarding the rapid acceleration which the powerful motor makes possible.

However, it is just as important, if not more so, that there be equipment which can slow down or stop the vehicle, once it has been placed in motion. Modern brakes are capable of slowing down or stopping our present automotive vehicles very rapidly. Still it is seldom that we hear anyone boasting about the horsepower of the brakes and the rate at which they are able to slow down or stop motor vehicles.

There is an immense amount of energy stored up in a moving vehicle. This energy is called "kinetic energy," or "energy of motion." In order to stop a moving vehicle we must change the "energy of motion" into another form. We slow down or stop automotive vehicles by means of the braking equipment. The real work is done by brake lining rubbing against brake drums attached to the wheels. Each time the brake pedal is depressed, the brake linings rub against the brake drums and change the "energy of motion" into *heat* energy.

When the weight of a moving vehicle is doubled, the "energy of motion" at all speeds is also doubled. Thus there is twice as much "energy of motion" to be changed into heat energy whenever it is desired to slow down or stop the vehicle. The same rule holds true for all changes in weight. Three times as much weight to be stopped—three times as much heat at the brake drums—and so on. Heat is the enemy of brake linings and we can therefore see why better brake linings have been required whenever vehicle weights have been increased.

When we come to increases in the speed at which the vehicle is traveling, the result is much more serious. A number of years ago the average speed on our roads was about 20 m.p.h. Some years later the average speed had increased to around 40 m.p.h. According to engineering mathematics there is *four* times as much "energy of motion" stored up in a vehicle traveling 40 m.p.h. as there is in the same vehicle traveling only 20 m.p.h. Thus we see that by doubling the speed we have increased the "energy of motion" to *four* times its original value. This means that there is *four* times as much "heat energy" at the brake drums when stopping from 40 m.p.h. as there is when stopping the same vehicle from 20 m.p.h. Since heat is the thing which, more than anything else, destroys brake linings, this explains why four times better brake lining was required when the average speed went from 20 m.p.h. to 40 m.p.h.

Today we find motor vehicles often stopping from 60 m.p.h. on our highways. Using the same engineering mathematics again, it can be calculated that there is *nine* times as much "energy of motion" stored up in a vehicle traveling 60 m.p.h. as there is in the same vehicle traveling only 20 m.p.h. This means that there is *nine* times as much "heat energy" at the brake drums when stopping from 60 m.p.h. as there is when stopping the same vehicle from 20 m.p.h. Accordingly, for 60 m.p.h. brake applications we need brake lining nine times better than that required for 20 m.p.h. brake applications.

This increased need for high grade brake lining continues in the same ratio with increased speed. For instance, 80 m.p.h. brake application—16 times more "energy of motion" than 20 m.p.h. brake applications—16 times more heat developed between the brake lining and brake drums.

We all know that present-day motor cars travel at high speeds and must be able to stop safely from these high speeds. When we consider how *fast* they

(*Please turn to page* 53)

# TROUBLE SHOOTER's DEPARTMENT

**A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.**

## PASSENGER-CAR PRACTICE

● *To the Editor:* We have been trying for some time to secure the experiences of other fleet operators with their passenger-cars, in an effort to determine whether it is more economical to own and maintain them, or to pay either on a flat-rate per month or per mile for the use of privately-owned cars.

If you have any information on the subject, we would appreciate your views.—*G. C. R., Washington, D. C.*

*Answer: We have never made a survey on this angle of the subject, and think it's a good question for some future questionnaire.*

*A survey has been made some time ago, entitled "Controlling Costs and Operation of Business Automobiles." . . . You can obtain a copy by addressing the Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Avenue, New York. There is no charge.*

*We feel sure that you will find this to be something on the order of what you are seeking, provided that they have copies of the survey left. The same goes for other readers who may desire this survey. If you care to mention* FLEET OWNER *when writing, they will know just how you happen to ask for it.*

●

## SORRY—NOT FOR SALE!

● *To the Editor:* We would appreciate it very much if you will advise whether or not there is any manner in which we could obtain a complete file of FLEET OWNER's Question-of-the-Month reports, from the beginning up to the present. If there is any charge for it, we will be glad to remit, on receipt of your advice.—*W. E. M., Cleveland, Ohio.*

*Answer: Sorry, but these are not for sale. The thing to do is to participate in our monthly questionnaires, each issue. (This month's appears on page 35.) You will then automatically receive the summary to each question, and after you have worked with us for a year straight, you will get, free of charge, a handsome and durable leather binder, in which you can file all of your reports.*

*This department is strictly a reader service, and we would not care to violate the confidence placed by our readers, by offering these surveys indiscriminately, merely for filthy lucre. This is one thing that money cannot buy. . . . Our fleet mailing list is another, in case anyone is interested.*

●

## SHOP HINT

● *To the Editor:* When putting on the rear wheels of Ford cars, we sometimes find that after installing new lining, it is difficult to get the wheels on, due to the lining contacting the wheels, even when all adjustment is backed off. To speed this job up, we run the motor with the transmission in low speed and let this rotate the wheel after it is started on the shaft. As it is rotating, we hit it with a block of wood and heavy hammer, driving it gradually on until it seats on the taper. This provides a burnishing effect for the lining, and makes a hard job easy, particularly where the drums are a bit worn."—*H. D., New York, N. Y.*

### You May Not Believe It!

*(But Here It Is)*

**THE STATEMENT:**

THE BELIEF that a heavy vehicle rides more smoothly than a light one is a fallacy. . . . A light-weight vehicle, with proper spring-suspension, can ride more easily than a heavy vehicle.

**THE AUTHORITY:**

CHARLES B. BOHN, president of The Aluminum Association, is responsible for the above statement; he explains it as follows: "Reduction of inertia forces produces a corresponding reduction in impact. . . . The impact produced by a heavy vehicle striking a depression in the road surface is much more severe than the impact caused by a lighter vehicle striking the same obstruction. . . . In fact, this impact is proportional to the weight of the vehicle." . . . Mr. Bohn further points out that the lighter-weight vehicles of today, with their slower-rate springs, are far easier riding than their heavier predecessors.

●

## WANTS GARAGE LAYOUT

● *To the Editor:* We are contemplating building a service garage for our trucks, approximately 18 in number.

Could you give us any suggestions regarding the layout of such a garage and types of equipment needed for minor service operations on our trucks.—*D. L. C., Niagara Falls, N. Y.*

*Answer: There was a dandy article on garage layout, including a floor-plan, in our February issue of this year. While this garage is for a large fleet, we imagine that you can follow the same layout, but decrease the dimensions accordingly, to fit your smaller fleet. (Tear sheets are being sent).*

*With reference to shop equipment, this depends on just how much service work you are planning to do in your own shop. You should have at least one or two good, heavy workbenches, with heavy vises and plenty of drawers and racks for small tools. Ample lighting facilities should be provided.*

*You will probably need an air-compressor, greasing equipment, floor-jacks, hand-jacks, horses, electric drill, and some engine tune-up instruments. Rather than send you a list of equipment, we are sending you our recent survey on Shop Equipment. You can then go through the list, and select such equipment that is most numerously used among fleets of your size. There is no limit to what you can buy, and it is difficult to tell you what to get, without knowing just exactly how much of your own service work you intend to do.*

●

MAYOR Stewart, of Cincinnati (in light suit) making the presentation of the Trailmobile Safety Trophy to H. D. "Buddy" Horton, president of Horton Motor Lines. . . . Mr. Horton holds the trophy. . . . M. B. Speir, Horton safety director, holds the bronze plaque.

## HORTON MOTOR LINES WINS THE 1939

# TRAILMOBILE SAFETY TROPHY

FIRST HONORS in the Trailmobile Safety Trophy Contest for 1939 go to Horton Motor Lines, Inc., Charlotte, North Carolina, for the many acts of courage, courtesy and quick thinking on the part of Horton drivers, which resulted in saving property and life on the roads.

Such acts as extinguishing fires arising from wrecks, pulling cars out of ditches, starting stalled cars, removing injured persons from wrecks, dressing injuries, restoring motorists suffering from shock—all these acts performed by Horton's Red Cross trained drivers and safety men, have made the highways safer for all highway users.

Signal honors were also awarded, in the form of beautifully-engraved wall plaques, to Huber & Huber, Louisville, Kentucky; Boutell Driveaway Company, Flint, Michigan; and Hale-Halsell Company, McAlester, Oklahoma, for their similar accomplishments in their competition. These concerns have all done much to overcome the former prejudice against trucks on the roads, by their good deeds.

Presentation of the Trailmobile Safety Trophy awards was made at the Annual American Trucking Associations Convention, held recently at the Stevens Hotel, Chicago, Illinois, by Hon. James G. Stewart, Mayor of Cincinnati.

The Trailmobile Trophy is awarded annually by The Trailer Company of America, Cincinnati, Ohio, under the direction of The American Trucking Associations, Inc., Washington, D. C., to the highway freight carrier of any size or classification whose fleet is best trained and equipped to give aid to distressed motorists on the highways.

This Trailmobile competition has been, and will long continue to be a dominant factor in securing a place in public esteem for the overland truck driver, that his skill and ability deserve. Trailmobile has aided the cause of the industry by widely publicizing the good that is done by the highway carrier and by recognizing the truck driver as the gentleman of the road and the best friend of the general highway user.

Trailmobile thus honors the fleet operator who promotes the cause of truckers by his willingness and ability to give assistance to distressed motorists on the highways. This award has stimulated freight carriers to many acts of valor, courtesy and bravery and has been a mighty factor in advancing the interests of all highway freighting concerns by convincing the public that the truck driver is the safest driver on the road.

Charles G. Morgan, Jr., American Trucking Associations executive, making the formal announcement of the Trophy, last year.

The two photographs at the top of this announcement show the trophy itself and the presentation of the 1939 award. In case you are interested, the gentlemen in the group picture are: Front row, left to right: L. Hughes, president, C & D Motor Express, Cincinnati, Ohio; R. B. George, vice-president of Trailmobile, New York N. Y.; Hon. James G. Stewart, Mayor of Cincinnati, who made the presentation; H. D. "Buddy" Horton, president of Horton Motor Lines, Charlotte, N. C.—the 1939 winner; M. B. Speir, Jr., director of safety and personnel, Horton Motor Lines.

The gentlemen in the top row, from left to right, are: E. J. Lucas, southern zone manager of Trailmobile; Al. Jahnke, president, Continental Freight Forwarding Co., Cincinnati; J. J. Black, chief engineer, Trailmobile, Cincinnati; and A. J. Woltering, executive vice-president of Trailmobile.

WHAT to expect from Sealed Beam headlights, when new and properly maintained.

# SEALED-BEAM HEADLIGHTS

## NOW AVAILABLE FOR OLD EQUIPMENT

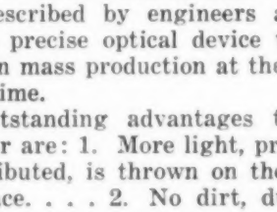
THE MERITS of the new "Sealed Beam" headlamps, now standard equipment on practically all 1940 automobiles, and on a great many trucks too—need no further expounding here. What makes this announcement "news" is the fact that lighting equipment on *all* makes of vehicles—prior to 1940 models, can now be modernized at low cost, in order to be able to enjoy the full benefits of "Sealed Beam" lighting.

At least one manufacturer—and it is expected that others will follow—now offers complete replacement headlights into which genuine "Sealed Beam" has been built at the factory. It is our understanding that replacement of existing headlights on these old vehicles can be done at a cost that is not prohibitive. Another alternative is to use "Sealed Beam" *Auxiliary* headlamps, which can be mounted on the bumper bracket, not unlike the manner in which fog-lights are often mounted.

It is *not* the purpose of this announcement, of course, to editorialize on something which someone wants to sell you. On the other hand, the subject is of such great importance to motor vehicle fleet users, that we feel duly warranted in calling it to your attention in this manner.

Although we gave you complete details on how to service the "Sealed Beam" headlamps in our October issue, let us briefly review what you may expect from them. In "Sealed Beam" for the first time, the reflector, light-source and lens are made up in a single, permanently-sealed unit. It cannot be opened, and each element is adjusted at the factory in correct unchangeable relationship to the others. The "Sealed Beam" lamp is described by engineers as the most precise optical device turned out in mass production at the present time.

Outstanding advantages to the driver are: 1. More light, properly distributed, is thrown on the road surface. . . . 2. No dirt, dust or moisture can penetrate the sealed unit to film, corrode or fog the reflecting surfaces and lens. . . . 3. Longer-lived filaments make for infrequent replacement, but when a light *does* burn out, the entire unit can be replaced easily and economically. . . . 4. Being sealed, the lamps should not lose more than a small fraction of their efficiency throughout life, and with replacement, the fleet owner may anticipate new-car lighting efficiency as long as the vehicle is on the road. . . . 5. Both for installation and use, the new device is as simple and fool-proof as engineering ingenuity has been able to make it. A screwdriver is all that is needed to install and adjust the direction of a beam. . . . 6. All makes of "Sealed Beam" lamps are wholly interchangeable and will fit equally the highest and lowest priced models equipped with the system.




ADJUSTMENT of Sealed Beam headlamps is simple—one screw for vertical adjustment, and one for horizontal adjustment.

Back of the development occurred a long period of intensive study in which every automobile manufacturer and the lighting equipment makers freely contributed the knowledge gained through many years of research, and the time of their expert lighting engineers.

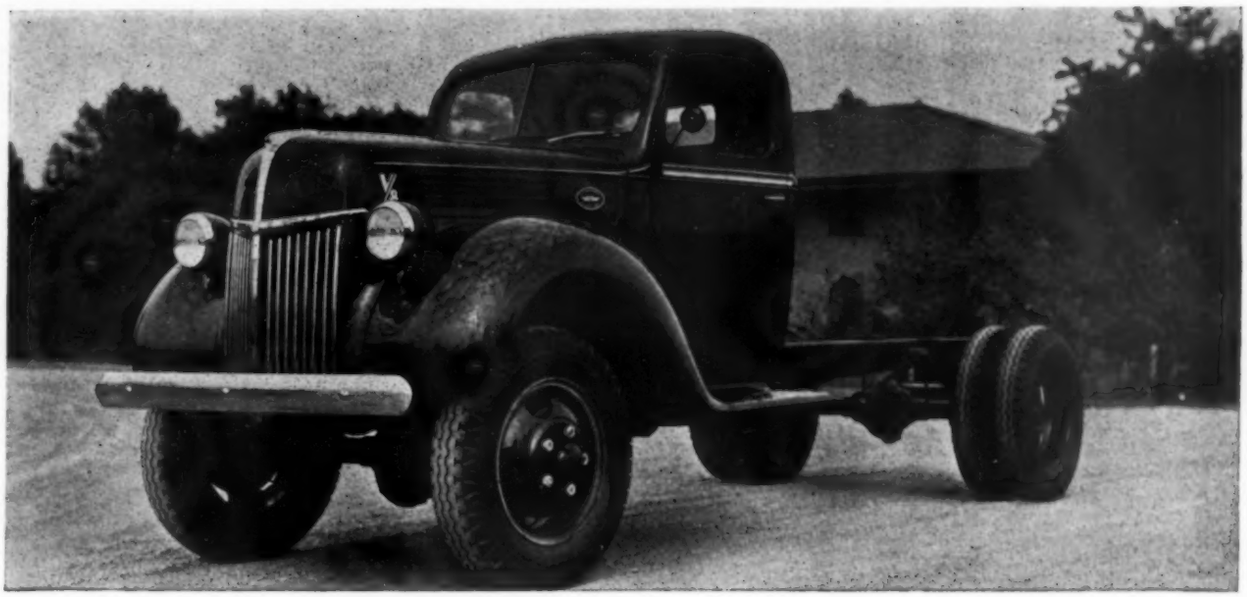
Three years ago an engineering committee, on which all car makers were represented, undertook coordinated study. Primary reasons were the need for uniform results in better illumination, uniform equipment to simplify operation by the driver and adjustment at the service station, and adaptation of state regulations to the advanced standards of car lighting.

At the outset, the industry began consultation with the American Association of Motor Vehicle Administrators. To the advice and cooperation of this Association's members through its engineering committee, the industry attributes in large measure the successful completion of the program. The authorities of several states which had differing regulations worked to adapt these to permit introduction of the new system.

Recognition developed early in these joint studies that availability of increased light on the road would be a definite improvement for safety and comfort, if the beam could be kept correctly controlled throughout its life.

The new lamps throw two light beams. The first, for universal use on lighted city and town streets and on the highway wherever there is movement of other vehicles, is known as the "traffic beam." This is virtually a no-glare beam. Its characteristics include a wide dis-

(*Please turn to page* 54)



# 1940 MARMON-HERRINGTON LINE

MANY engineering improvements and refinements in design are announced by The Marmon-Herrington Company, Indianapolis, Indiana, for their 1940 models of All-Wheel-Drive trucks, commercials and passenger-cars, which now make up one of the most complete lines of "high-traction" vehicles on the market.

In the heavy-duty series of Marmon-Herrington All-Wheel-Drive trucks and trailer-tractors, there are more than thirty models of four-wheel and six-wheel units powered with Hercules gasoline and Diesel engines.

Each of these new units is available with standard or special bodies and operating equipment for oil-field transportation, logging, road-building, snow-removal and other difficult "on-and-off-the-highway" services. These units range in size up to 25-tons load capacity for trucks, and up to 50-tons or more for tractors.

Supplementing and completing the line, the company also converts all standard Ford trucks, passenger and commercial-cars to All-Wheel-Drive, thus giving the buyer all the advantages of high tractive ability in medium and light-weight vehicles at reasonably low prices.

These All-Wheel-Drive Fords are claimed to show excellent ability to perform over the most difficult terrain, such as rock and brush-covered hills and plains, deep loose dirt, sand, mud or snow.

The relatively lighter weights of these trucks and passenger-cars, coupled with the greatly increased traction of four or six driving-wheels, enables them to go places and do things that no other standard vehicles are capable of doing, according to Marmon-Herrington engineers.

Each year as the Ford Motor Company makes chassis and body refinements and improvements, Marmon-Herrington engineers keep pace in making the necessary changes to apply traction and power to all of the wheels. This re-engineering to adapt the Marmon-Herrington conversion to 1940 Ford models has now been completed. These new trucks offer increased stamina, strength and safety as well as more effective power utilization, it is claimed.

Conversion of the standard Ford to All-Wheel-Drive by Marmon-Herrington entails many replacements of parts and chassis alterations which are made only in Marmon-Herrington plants, under the direct supervision of Marmon-Herrington engineers.

Primarily, this conversion consists of the replacement of the standard front axle with a driving front axle, front springs by stronger springs, and the addition of an auxiliary transmission, etc.

If the vehicle is to be a six-wheeler, the frame is lengthened and strengthened and tandem-driving rear axles are installed, instead of the standard rear axle.

Marmon-Herrington All-Wheel-Drive Fords are widely used for transportation of men and materials, all over the world, wherever the "going" is beyond the ability of conventional-drive trucks and passenger-cars.

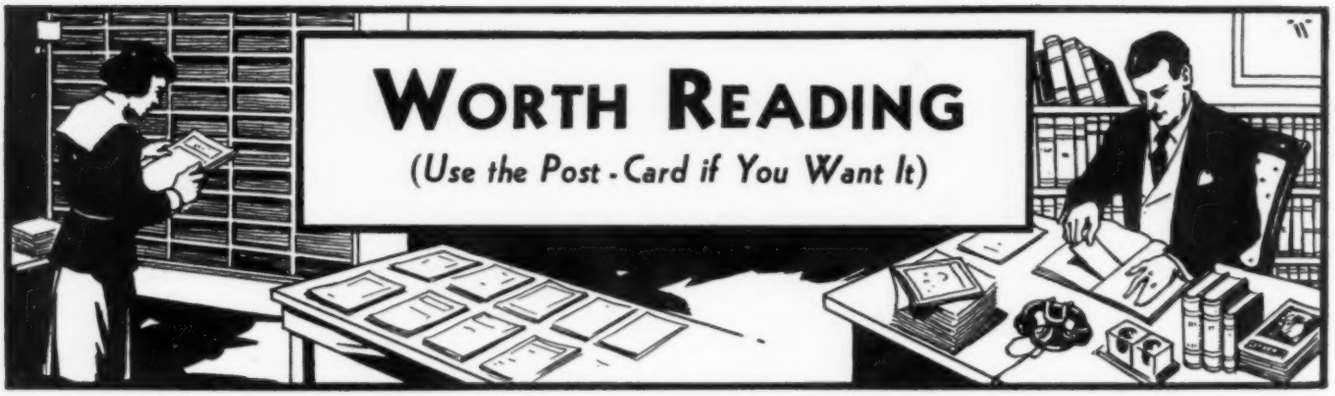
ALL-WHEEL-DRIVE Ford truck chassis, doing its stuff in some rough going.

Operating with all the original power, speed and economy of the standard Ford, the greatly increased tractive ability permits travel far beyond the range of any conventional-drive vehicles, the engineers state.

The general offices and principal manufacturing plant of the Marmon-Herrington Company are located at Indianapolis, Indiana. Branch offices and distributing agencies have been established throughout the United States and in many foreign countries.

For further information, detailed literature and specifications on any

(*Please turn to page* 55)



# WORTH READING

## (Use the Post-Card if You Want It)

**TEN BOOKLETS selected by the Editor as being worthy of a place in your "New Literature" file. . . . Please note that these are NOT tied-in with advertisements, that they have been carefully chosen on their OWN MERITS, and that we use NO high-pressure, and do NOT URGE you to send for them. . . . We promise they'll be MAILED promptly; no obligation. . . . The card is for your convenience.—H.C.F.**

**514.** GEAR LUBRICANTS. . . . This is a 16-page booklet that aims to present a picture of efficient gear lubrication to motor fleet supervisors. . . . It contains data on extreme pressure (EP) oils and greases for automotive and industrial gears and bearing surfaces, and analyzes the conditions which make necessary such special lubricants. . . . A chart illustrates the relationship between load-carrying capacity and stability of commercial lubricants. . . . A discussion on sludges completes the booklet. . . . Number 514 on our post-card brings you a *free* copy by mail.

•

**515.** "FRUEHAUF FORWARDER." . . . That is the title of an interesting "magazine," published from time to time, for the information and enjoyment of transportation men. . . . Profusely illustrated with pictures of fleets in various industries, prominent men in transportation, and current events in the trucking world, this publication also contains much in the way of "news" that should interest all. . . . Your placing Number 515 on our post-card means that Fruehauf will be glad to put your name on their *free* mailing list—to receive the *"Forwarder"* as issued, just as you receive FLEET OWNER—without cost or obligation of *any* kind.

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**516.** WELDING MANUAL. . . . The title of this one is *"101 Welding Ideas for Low-Cost Maintenance."* . . . Its 16 pages illustrate and describe a wide variety of money-saving repair, fabrication and structural applications of electric-welding. . . . Case-studies of 101 actual maintenance jobs show how you can do general repair work to broken and worn parts of all kinds, by the electric-arc process. . . . A *free* copy will be mailed to you if you mention No. 516 on our post-card.

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**517.** RETAIL-DELIVERY. . . . Those fleets engaged in house-to-house delivery of products in bakery, dairy, laundry, department store and similar fields, will no doubt find this one right up their alley. . . . It's a 32-page booklet that analyzes the advantages of the horse-and-wagon (as well as the disadvantages) in comparison with modern retail-delivery vehicles. . . . After that, it takes you right through the design, engineering, construction and maintenance of White's new *"White Horse"*—and does it in a manner which you have seldom seen before. . . . This book is really a worth-while piece of work; Number 517 on our post-card brings a free copy—*only* to those operators engaged in retail-delivery work.

**PLEASE NOTE:**

THIS department is strictly a reader-service. . . . Our only endeavor is to provide you with worth-while literature, by mail.

NO SALESMEN WILL CALL!

•

**518.** TRUCK SEATS. . . . That truck seats present a problem which causes many fleet men to reach for the aspirin bottle, was proven in our two recently-conducted surveys on the subject. . . . Upholstery materials cause their share of headaches, too. . . . Here is a dandy sample-book of seat coverings (imitation leather) that contains large, actual swatches of materials available—so that you can actually *see* the color, *observe* the grain, and put the material to *any test* you care to concoct. . . . This duPont sample-case comes to you, *free*, if you desire it. . . . Simply mention Number 518 on our post-card and we do the rest.

•

**519.** SEAT CUSHIONS. . . . And, while on the subject of truck seats, here is the latest broadside on sponge-rubber. . . . It illustrates and describes the latest in truck seat materials. . . . Since the preference seems to be for all-rubber seats, in place of springs, this literature should be quite timely. . . . Number 519 brings a *free* copy by mail.

•

**520.** BODY HARDWARE. . . . More interest than ever is being shown in hardware for truck bodies. . . . This was evidenced by our recent survey on the subject, and also by the many inquiries coming into our office asking for catalogs. . . . Well, if you'd like a good truck body hardware catalog, here is one that ought to fill the bill, as it covers a most *complete* line—"locks and latches for doors and hatches," hinges, window-regulators, handles, seat hardware, etc. . . . Number 520 on our post-card brings you a free copy by mail.

•

**521.** BRAKE FLUIDS. . . . If you lean somewhat towards the technical, you'll want a copy of an article entitled *"Hydraulic Brake Fluids."* . . . It tells all about the manufacture of brake fluids—what they contain, how they are made, and the various properties they should have. . . . This article is written by a man connected with the Mellon Institute in Pittsburgh, and it's *not* advertising matter. . . . While the supply lasts, we'll try to get a free copy for you. If you want one, just place Number 521 on our post-card.

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**522.** SPARK PLUG QUIZ. . . . The title of an interesting "quiz" booklet is *"What's Your P.Q.?"* . . . The "P.Q." stands for Plug Quotient. . . . In other words, this booklet contains a set of questions and answers on the subject of spark plugs, their design, manufacture, use and maintenance. . . . Besides being fun, you'll find this "quiz" an educational stunt that you might be able to use at your next shop meeting. . . . Free copies sent if you mention Number 522 on the post-card.

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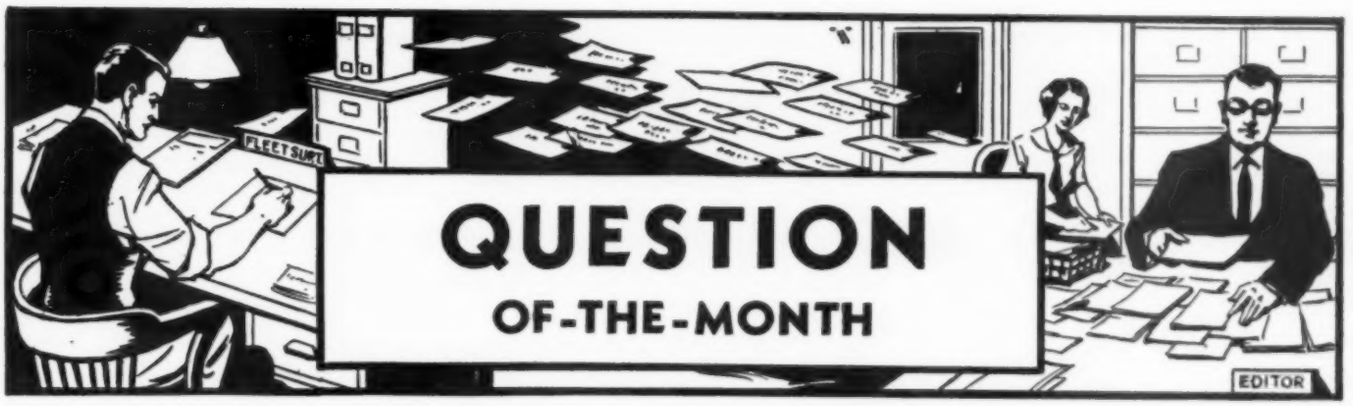
**523.** NO MORE SLUDGE? . . . That's just what they promise if you use Magnus Met-Affin—a penetrating, surface-acting solvent that is said to rapidly and thoroughly remove and absorb sludge and carbon deposits, besides preventing sludge from reforming, and protecting lubrication. . . . This treatment, it is claimed, thoroughly purges a motor and keeps it clean inside, indefinitely. . . . They tell us that it also will "oil-plate" metal surfaces, and an interesting leaflet illustrates and describes just how it works and shows some practical examples. . . . Number 523 brings a *free* copy, with no obligation to buy any.




# FAN BELTS

*(Here's how you can get INTIMATE BUYING INFORMATION on this subject:)*

THESE monthly questionnaires enable us to come right back at you with *practical* experience information, rather than a lot of theory. . . . It is a dandy method of getting a cross-section on fleet practice, on almost any subject.

The questionnaire is the *first* step. In return for a few minutes of your time in filling it out and sending it back to us, you will receive *your own* private, personal copy of the complete picture. We do all of the *hard work*, digesting and totaling the replies—and *you* get the *benefit!*

Names of fleets or executives are *never* mentioned or disclosed in any way. So don't hesitate to participate. You can *trust* us! The only thing we give out is the total, the trend, the popularity of relative makes, etc.

Once you participate, we feel sure that you will do it regularly. Your cooperation is appreciated.—H.C.F.

*(Please tear out and mail to The Editor, Fleet Owner, 90 West St., New York, N. Y.)*

## Question No. 103—Fan-Belts

What is your most common cause of fan-belt failure? *(Please check below)*

☐ Breakage ☐ Chafing of Cover ☐ Grease-Soaked
☐ Stretching ☐ Ply Separation ☐ Just Wear Out

Other causes of fan-belt failure? .....

How often do you inspect and/or tighten fan-belts? *(Please answer in "miles" or "months")*
Every .....Miles OR Every .....Months

What is the *average* life of fan-belts in your fleet? *(Please answer in "miles" or "months")* .....

Which type of fan-belt do you find most satisfactory? *(Please check ONE only)*

☐ Fabric-Covered ☐ Leather Others? .....
☐ Moulded Rubber ☐ Link-Type .....

Do you standardize on one type or make of fan-belt when replacing? ☐ Yes; ☐ No; ☐ Sometimes

Which make of fan-belt do you prefer? ..... *(Your answer to this one is kept confidential, of course)*

Do you specify the make of fan-belt desired, when ordering? ☐ Yes; ☐ No; ☐ Sometimes

Does the make originally furnished have any bearing on your selection for replacement? ☐ Yes; ☐ No

What is your main source of supply on fan-belts? *(Please check ONE only)*

☐ Vehicle Dealer or Branch; ☐ Automotive Jobber; ☐ Chain Store; ☐ Retailer; ☐ Mfr.

About how many fan-belts do you replace per year in your entire fleet? ..... *(Rough figure will do)*

What steps should be taken to prolong the life of fan-belts? *(Please explain)* .....
.....

In your opinion, are original equipment fan-belts satisfactory? ☐ Satisfactory; ☐ Could be Better

REMARKS *(Tell us your troubles, boys)* .....
.....
.....

How many vehicles in your fleet? (Please indicate below)
Trucks..... Tractors..... Trailers..... Pass. Cars..... Buses..... Miscellaneous.....

***Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.***

***Swap your transportation experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.***

*Name of Firm* .....
*Address* .....
*City and State* .....
*Your Name* ..... *Position*.....

# LETTERS TO THE EDITOR

## MANUFACTURERS TAKE NOTE

● *To the Editor:* Your questionnaire Number 100, covering the upholstery and construction of truck seats has been very interesting.

Truck seats are certainly not what they should be, and it would seem that your survey would give truck manufacturers some very good first-hand information, were they to read the comments of the various fleet owners who participated in your survey.

We appreciate, very much, the information that is contained in this study.—*Dale F. Myer, Pres., Dale Myer Bakeries, Inc., Kokomo, Ind.*

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## SUGGESTS GLASS SURVEY

● *To the Editor:* The writer has been very much interested in the surveys made by FLEET OWNER magazine each month. We would appreciate it if, at your convenience, a survey were to be made on cab door glass and windshields.

We have for the past few years been experiencing considerable difficulty in keeping glass not only in the doors but in the windshields as well. We find that our greatest difficulty is in the summer, when windows are kept down and the windshields are opened.

We are sure that the results of such a survey would prove helpful to all concerned.—*G. B. Van Buskirk, General Traffic Mgr., John F. Trommer, Inc., Brooklyn, N. Y.*

*(Editor's Note: Thanks for the suggestion, Mr. Van Buskirk. We immediately got busy on the glass questionnaire, which appeared in last month's issue, and trust that it unearths some valuable data.—H. C. F.)*

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## TRUCK SEATS AND SAFETY

● *To the Editor:* I have read your survey article on "*Truck Seats*" in the October issue, hoping to find that you had asked a question regarding the relation between seat-adjustment, height, etc., and the frequency of vehicle accidents.

I feel that proper seating is important from a safety angle, and one has only to observe the traffic movements of the short man in a low seat, or the short-legged man driving in an improperly adjusted seat, to get the point.

Proper seating provides better vision and reduces driving fatigue appreciably. Many commercial vehicle operators are aware of this fact, and make appropriate seat adjustments, but the manufacturers of both passenger-cars and commercial vehicles could do much in the way of safety, by providing a built-in adjustment for varying the height of the driver's seat.—*E. G. Burgess, Engineering Dept., Liberty Mutual Insurance Company, Chicago, Ill.*

●

## "WE ALL BENEFIT FROM IT"

● *To the Editor:* I want to take this opportunity of expressing our appreciation for your monthly magazine, FLEET OWNER, which is sent to us regularly.

Each month when FLEET OWNER is received at this office, it is passed all around—from the highest to the lowest employee in this organization, and I want to say that each and every man receives some benefit from it. Thank you very much.—*T. A. Johnson, Foreman, Texas State Highway Department, Sulphur Springs, Tex.*

●

## LIQUIDATES HIS INDEBTEDNESS

● *To the Editor:* The receipt of your magazine, FLEET OWNER ever since you so kindly placed my name on your mailing list, is highly appreciated. It is regularly received here.

There are times when I really feel indebted to you for this courtesy, and I take this means of liquidating this indebtedness, to a slight degree, by sending you one of the U. S. Army Regulation pamphlets, published by the War Department, and having to do with military motor vehicles.

May I again thank you for this magazine, a file of which I keep handy on my desk. I hope that all future copies will be forwarded. In the event that it becomes necessary to charge a subscription price, please consider me one of your first subscribers.—*E. H. Besse, Major, Q.M.C., U. S. Army, Fifth Corps Area, Fort Hayes, Columbus, Ohio.*

## NOTE OF APPRECIATION

● *To the Editor:* Although we have not written you before this to thank you for our regular copy of your publication, FLEET OWNER, we wish to at this time thank you very much for it. We find it very interesting and helpful.—*A. J. Hunt, C. E. Hunt & Sons, Inc., Worcester, Mass.*

●

## THANKS FOR THE NAMES

● *To the Editor:* I am sending you a list of various truck and bus companies operating in my vicinity, as I know that these concerns would appreciate receiving your monthly magazine, FLEET OWNER, as much as I do.—*S. B. Jamieson, Hudson Transit Lines, Harriman, N. Y.*

●

## "COVER TO COVER"

● *To the Editor:* Just a note to let you know that I enjoy reading your magazine FLEET OWNER, very much, and read every issue from cover to cover.—*R. G. Cornelius, Rhinebeck, N. Y.*

●

## JUST BOUQUETS

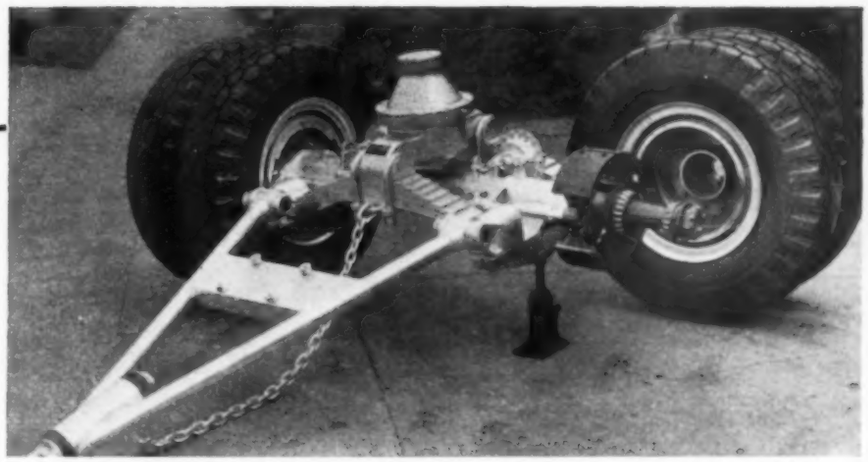
● We note with interest and appreciation, the following brief remarks penned-in on various correspondence from fleet operators, coming into this office. This means is taken of acknowledging same:

● "Thanks for FLEET OWNER; I like it a lot."—*Robert Rochester, Revonah Laundry, Inc., Glendale, L. I., N. Y.*

● "Your publication FLEET OWNER, is most educating."—*George McGaffin, Supt., Westchester Street Transportation Co., White Plains, N. Y.*

● "We appreciate your magazine, FLEET OWNER, and find it very interesting."—*L. L. Putnam, Putnam Brothers, Peabody, Mass.*

● "Mr. Victor J. Brown, who is in charge of our institution garage, is very much interested in your publication, FLEET OWNER, as a valuable source of information."—*Lewis E. Lawes, Warden, Sing Sing Prison, Ossining, N. Y.*



# FIFTH-WHEEL

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**FLEET OPERATOR develops new fifth-wheel for full-trailers. . . . The unit eliminates the sub-frame structure and permits lower center of gravity. . . . Now available for use on 4-wheel trailers.**

"SILVER EAGLE" is the trade name of a new fifth-wheel assembly for full-trailers, developed by a fleet operator on the Pacific Coast—The Silver Eagle Company, bulk petroleum haulers of Portland, Ore.

Julius Gaussoin, president and manager of the Silver Eagle (hauling) Company, was not entirely satisfied with the existing designs of full-trailers of several years ago. He also had a desire to lower the center of gravity of loads carried on his full-trailers, and began to institute research and experimentation towards a more satisfactory unit. This resulted in the development of the Silver Eagle Fifth-Wheel Unit, illustrated above and below.

The Silver Eagle Company (as a trucking company) was established in 1933, and has used this new fifth-wheel unit in its own operations for about three years. More recently, they decided to place it on the market. Silver Eagle Company is the manufacturer, while the Beall Pipe & Tank Corporation, also of Portland, Ore., has exclusive sales agency for Oregon, Washington and Idaho. A glance at the accompanying illustrations will give you a pretty good idea of the details and construction.

Elimination of the conventional sub-frame in the Silver Eagle design is said to permit lower body mounting and a shorter steering radius, due to the fact that an "A"-type frame can be used for the trailer.

The Silver Eagle unit mechanically adjusts itself to take up any wear which may occur, according to the makers, and ease of steering never varies with use, since there are no bearings that might "pocket".

Dual transverse springs, one in front of the axle, and one behind, which serve to balance each other and also to locate the axle position radially, are employed in this design.

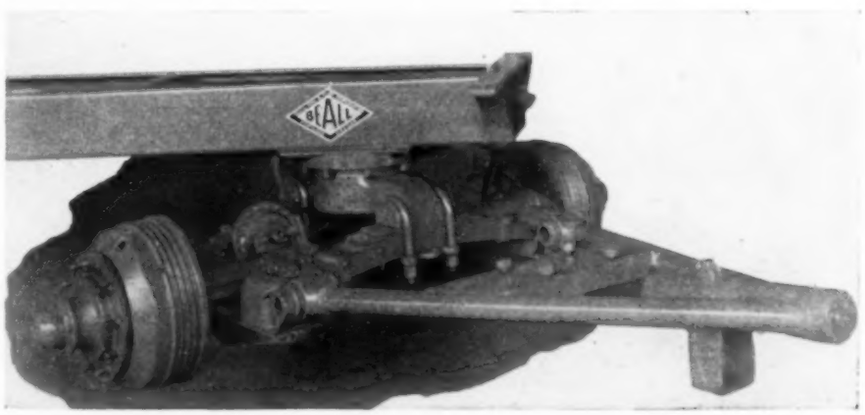
All shocks—road, braking and draft—are said to be considerably modified, because they are transmitted through the springs. In turning corners, the weight is absorbed in the ends of the springs, which are 4½ inches wide and 40 inches long, mounted in rubber, and clamped with one-inch chrome-nickel U-bolts to a radiused spring-pad which is an integral part of the fifth-wheel spindle.

The transverse spring suspension also permits the use of an axle-level draw-bar, which, in turn, allows a choice of varying the length of the draw-bar to accommodate truck hangover length. The draw-bar itself has no metal-to-metal contact, all points being rubber-bushed. The front end of the draw-bar has a rubber shock-absorber, which absorbs all draft, compression and thrust shocks, according to the makers.

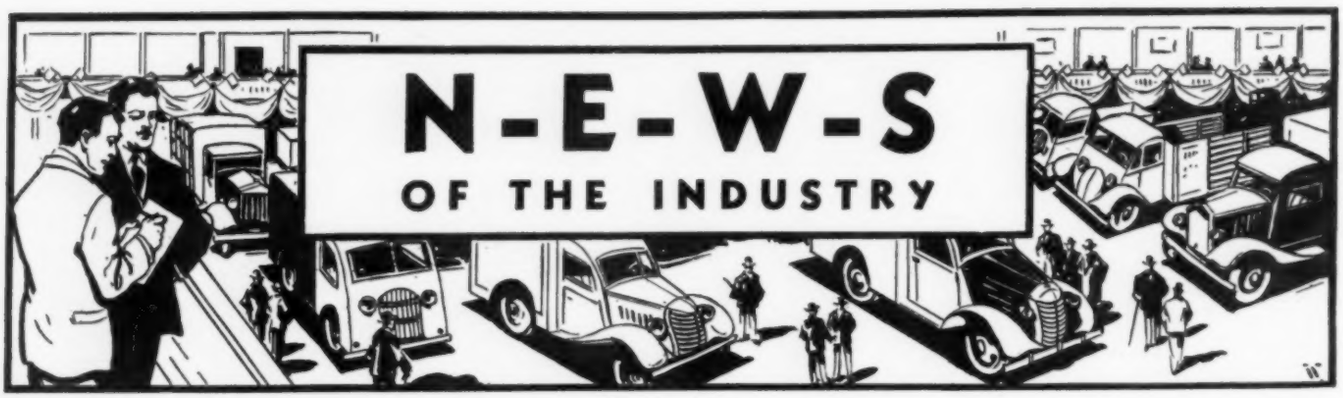
Additional tire mileage is also claimed when this new fifth-wheel assembly is used, because the trailer is said to track perfectly, with no tire scuffing or unequal wear. It is also stated that the trailer will not dive, duck or pound, when the brakes are applied.

Construction features of the Silver Eagle fifth-wheel are clearly shown in the illustrations accompanying. These include the single-point mounting cone, about which all load-weight centers automatically; a single lubrication fitting, for

(*Please turn to page* 56)




**THIS VIEW shows the Silver Eagle Fifth-Wheel installed on a 4-wheel trailer built out on the Pacific Coast. . . . The draw-bar is said to automatically absorb draft, compression, thrust and to eliminate all types of destructive play. . . . Note the transverse springing.**




### A.M.A. Passes Resolution Against War

THE AUTOMOBILE Manufacturers Association, by action of its directors recently, declared itself unreservedly opposed to participation by the United States in the present European war. . . . The resolution also stated the belief that the preservation of the country's freedom of speech, of religious belief, and of opportunity, is the most important problem facing all Americans today.

●

### 19 Chasses in 1940 Ford Truck Line

FORD Motor Company announces that there are now 19 different chassis types included in its 1940 line of V-8 trucks and commercial cars. The line was designed to meet the major requirements of the expanding special body field. . . . Chasses range in wheelbases from 101 inches to 194 inches, and all of them provide standard cab-to-axle measurements, and also standard frame widths for mounting standardized bodies built by independent body manufacturers. . . . Conventional and cab-over-engine models are included.

●

### Buick to Build New Taxi Model

ADDITION of a new, low-cost taxicab to the current series of Buick cars, marking the first time that this manufacturer has entered the commercial vehicle field on a production basis, was announced recently by Harlow H. Curtice, president and general manager. . . . The new model has a special body designed for taxicab service along luxury lines. . . . An innovation is the use of "foamtex" rubber in all seats and cushion backs. The job will be offered on a 121-inch wheelbase chassis.

●

### Kellogg Acquires Hardie Mfg. Company

THE AUTOMOTIVE business of the Hardie Manufacturing Co., Hudson, Mich., has been taken over by the Kellogg Division of the American Brake Shoe & Foundry Company, according to J. F. Weller, president of Kellogg. . . "Because of the widespread and favorable reputation which Hardie Car Washers have won in the high-pressure car-washer field, the name Hardie will be retained, and the product will now be known as the Hardie-Kellogg Car Washer," Mr. Weller declared. . . . It will be available in a complete range of sizes and capacities.

### Studebaker Adds to Sales Staff

ADDITIONS to the sales staff and promotions of men in the field organization of The Studebaker Corporation have been announced. . . . H. B. O'Neil has been appointed regional manager of Studebaker's Dallas branch. . . . S. A. Skillman is regional manager for Studebaker's Buffalo territory. . . . A. J. Wise is appointed regional manager in New York, under R. F. Gloster, assistant sales manager in charge of New York sales. . . . Six new district sales managers are also announced; these are: Charles R. Bowers, Saint Paul; George C. Norwood, Cleveland; C. A. Gier, Kansas City; Carl D. Kessler, Memphis; J. L. Greene, Philadelphia; David R. Neill, Kansas City.

●

### New Building for Cummins Parts Production

EFFICIENCY of production of fuel-pumps and injectors for Cummins diesel engines has increased materially, as the result of the transfer of the manufacture of these precision parts to a new one-story rigid frame building, completely equipped with specially-designed machinery. . . . An even distribution of daylight is provided by saw-tooth construction, plenty of glass and also clear-glass partitions. . . . The new structure has been in use for several months and a marked reduction in rejections is reported.

●

### Bowers Battery Company Adds Spark Plugs

BOWERS Battery Manufacturing Co., Inc., Reading, Pa., and Harvey, Ill., recently entered the spark plug field with the manufacture of a full line of plugs for every automotive purpose. . . . Production will be handled in the home plant at Reading, where a new addition to the battery plant was recently completed. . . . Paul Mena, engineer, will be in charge of the newly-organized spark plug manufacturing division.

●

### Pedrick Appoints Geare-Marston

WILKENING Manufacturing Co., Philadelphia, makers of Pedrick piston rings, announces the appointment of Geare-Marston, Inc., Philadelphia and New York, as its advertising agency. . . . New merchandising and advertising plans are being formulated, which should be of pertinent interest to fleet men, as well as to the entire automotive trade.

### E. R. Clinton Heads "Motor Rythm" Sales

E. R. CLINTON has been appointed sales manager of the Whiz Motor Rythm Division of R. M. Hollingshead Corporation, Camden, N. J. . . . Mr. Clinton will direct the sales and promotion of this popular tune-up oil. . . . He was formerly sales manager of the Vita-Var Paint Company and has extensive experience in sales promotion. . . . The tremendous increase in Motor Rythm sales during 1939 has necessitated the establishment of a separate division, according to L. M. Olson, general sales manager.

●

### New Merchandising Policy for "Gunk"

THE CURRAN Corporation, Malden, Mass., has inaugurated a new merchandising plan which simplifies the classification of their various "Gunk" compounds. . . . Hereafter three basic concentrates will be offered, namely, Gunk Compounds P-96, P-92 and X-11. . . . These will be sold in special containers, which will be supplied with laboratory service bulletins that give specifications and formulas showing the proper solvent diluent to be used with the various concentrates, for every industrial and automotive application. . . . For free copy of a typical service bulletin write to the company, mentioning FLEET OWNER, if you please.

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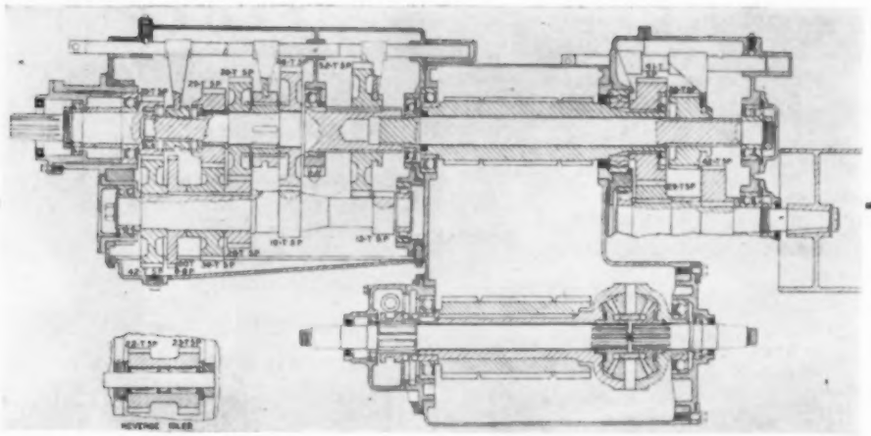
### Brunner to Exhibit at ASI Show

BRUNNER'S exhibit at the Automotive Service Industries Show this month will contain representative models of their single and two-stage air compressors, ranging from ¼-h.p. to 7½-h.p. inclusive. . . . Particularly featured will be a 1½ h.p., two-stage, vertical model, especially designed to conserve floor space. . . . Many improvements are also announced for the popular-priced models of Brunner air compressors.

●

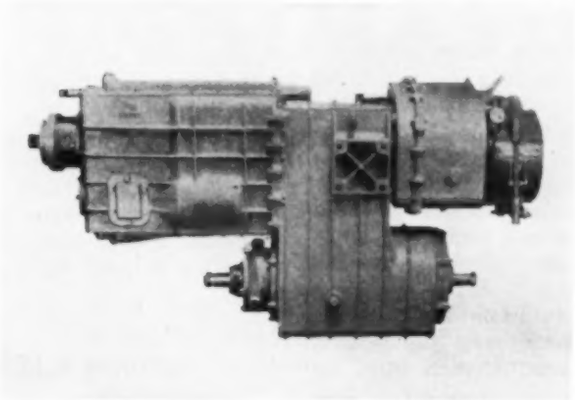
### Carl Behn Passes Away

CARL BEHN, vice-president of American Bosch Corporation, Springfield, Mass., died on November 15, after a brief illness. . . . Mr. Behn was widely known throughout the automotive and Diesel industries. He joined American Bosch in 1923, and was made vice-president in charge of sales in 1938. . . . He was prominently active in various engineering societies and was a vice-president of the S.A.E. in 1938.



# NEW TRANSMISSION

## FOR FOUR-WHEEL-DRIVE TRUCKS OFFERED BY F. W. D.



A NEW transmission in which many unusual features have been incorporated has recently been announced by The Four Wheel Drive Auto Company, Clintonville, Wis. This new transmission was especially designed for heavy-duty, four-wheel-drive service. It has a torque capacity in excess of the largest truck engines available, according to the makers, and is arranged so that the regular five speeds provided in the gear-box may be supplemented with a two-speed auxiliary that provides ten speeds forward and two speeds in reverse.

All of the gears in the new transmission are of the helical, constant-mesh type, except first and reverse. Sliding clutches are used throughout to insure easy shifting in all transmission speeds, including the low and high range, which may be shifted while the truck is in motion.

A transfer-case is bolted directly to the transmission in which a 12-inch wide silent chain is utilized to transfer the power from the level of the transmission main shaft, to a point $17\frac{7}{16}$ inches below, where the power is divided by a four-pinion differential to the front and rear axles. A locking arrangement is provided on the differential so that differential-action may be eliminated through the operation of a control in the driver's cab when a solid drive is desired to both axles.

With the transfer-case bolted directly to the transmission, alignment joints and short connecting shafts are entirely eliminated. Through the use of the silent chain, a cushioning medium is provided that absorbs abrupt shocks to the driving mechanism and provides quiet operation. An eccentric arrangement on the bearing supports of the lower silent chain sprocket, provides a quick means of tightening the silent chain, should there be any wear.

The new transmission and transfer-case and its optional two-speed auxiliary, form a single unit that can be mounted amidships in a truck, in a special, three-point suspension so that perfect alignment is maintained at all times, regardless of the distortion of the truck frame, as when going over extremely uneven ground.

The front end of the transmission is supported by a cast steel cross-member with a trunion mounting, while the transfer-case has cast integral supports that are bolted directly to the truck frame and provide a rigid support for the rear end of the transmission. The transmission mounting thus provides two extra frame cross-members to give more rigidity to the truck frame.

A unique feature of the new transmission is the ease with which it may be serviced. The entire mechanism may be disassembled in one hour and thirty minutes by two mechanics, without removing the transmission and transfer-case from the truck and without removing the cab or truck body, according to FWD engineers. The countershaft, mainshaft and reverse idler with their gears and bearings can be removed from the transmission by removing a cover (similar to the oil-pan on an engine) from the bottom of the transmission case. The drive-end gear can be pulled out of the transmission case by removing the studs holding its bearing sleeve.

The shifter-rods and shifter-forks are held in position by a cover which forms a split bearing for the shifter-rods. When the cover is removed, the shifter-rods and forks can be removed with the usual headroom provided under the cab. The upper sprocket in the transfer-case is removed with the auxiliary two-speed transmission, together with its bearings, while the lower sprocket and center differential with its bearings is removed through the opening for the

(*Please turn to page* 55)

## "Swamp Buggy" Built on Mack Chassis

CROSSING vast swamps and marshes in the coastal area of Texas is no impossible task for this new model EE Mack truck which has entered service for the Sun Oil Company. In fact, this new unit is a real amphibian as it ploughs across this difficult terrain.

Known as a "swamp buggy" and equipped with huge-sized tires, this truck is equally at home on roads or running across marshes.

Used in geophysical survey work, this particular unit operates as a water truck, carrying water around to other trucks which are drilling small holes into the ground to a depth of 100 to 200 feet for the purpose of planting charges of dynamite. The water which is carried by this unit makes drilling with a small rotary type drill easier. The truck also carries a small amount of explosives and has a small winch which is power-driven and mounted on the rear end of the body.

In actual operation this truck takes out right across country, encountering land which may be several inches under water, and is operating efficiently, according to the owners.

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## Motor Vehicles Improve Rail Service

TESTIMONIALS to the merits and advantages of highway transportation come from the railroads in the form of statements concerning improvement of general railroad service through the use of motor vehicles.

Most recent of these is by H. C. Murphy, Assistant to the Vice-President, Chicago, Burlington and Quincy, who says: "Today 64 American railroads operate more than 5,200 buses over approximately 50,000 route-miles, while 53,000 trucks are operated by railroads in terminal transfer, inter-city and store-door delivery service."

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## Cars and Trucks Driven 8,870 Miles Annually

THE average motor vehicle travels 8,870 miles annually on the streets and highways of the United States, and all passenger-cars and trucks add about 250,000,000,000 miles to their collective speedometer recordings each year, according to the Bureau of Public Roads. The estimate is for 1936, and is based on data obtained in the national highway planning surveys conducted by the Bureau in cooperation with the state highway departments.

Other data obtained in the surveys indicate that residents of smaller towns and villages use their cars largely outside their own cities. Residents of larger cities confine their driving more to the streets of their own city.

The average trip outside city limits was 14.6 miles for passenger-cars and 17.4 miles for trucks, the Bureau found. Sixty-five per cent of the trips by passenger-cars outside city limits were less than 10 miles. Only 1.5 per cent of all trips outside city limits were 100 miles or more.

●

## Is This the "Car of Tomorrow"?

IN the not-too-distant future, automotive engineers believe, motorists will ride in either rear-engined or front-engined cars of tear-drop shape—rounded front and pointed tail. Push-button doors will open upon a commodious room with a wide, flat floor and light movable chairs. The roof will be partly translucent, admitting health-giving rays of the sun, but preventing glare.

A series of buttons will regulate the temperature and humidity and another button will cause a concealed bed to emerge from a partition between passenger and engine compartments. It is believed that many passenger conveniences, such as lavatory facilities, could be installed without greatly increasing the height or width of the car and by adding only slightly to its length.

Present engineering developments will undoubtedly bring individual steering controls which can be carried or passed from place to place. As the car glides along, a radio speaker and microphone will allow the driver and passengers to carry on a two-way conversation without taking their eyes from the road.

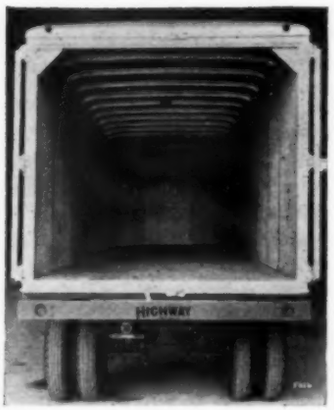
●

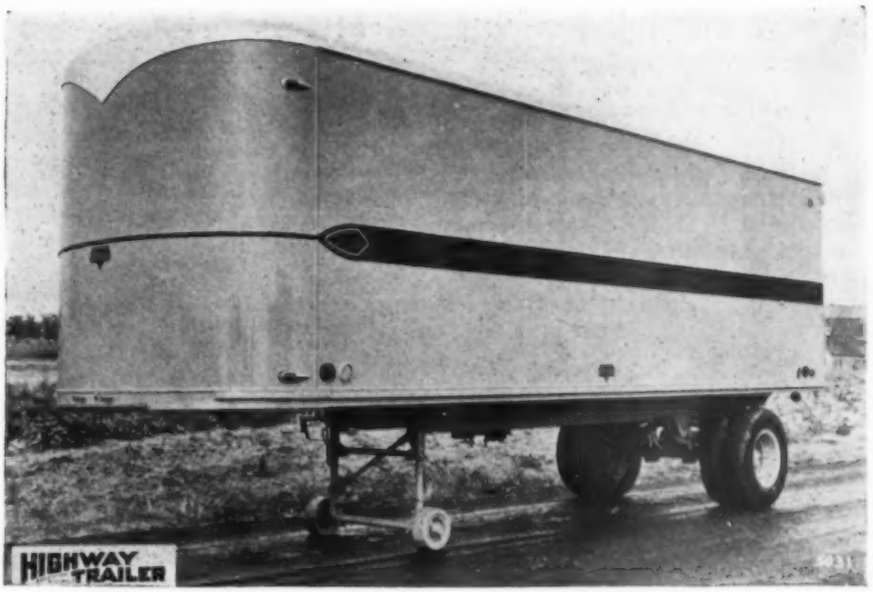
## 18 Units Added to State Highway Fleet

THIS fleet of eighteen Model-M7 FWD trucks was recently delivered to the New York State Department of Public Works. These trucks have by now been distributed to various districts in New York State and will be operated the year-'round in highway work, including snow-removal.

Each unit is equipped with a 4½ cubic-yard dump-body, operated by mechanical hoist. Tires are 10.50 x 24", with duals on the rear. Other equipment includes a 5½" spotlight mounted on the left side at the top of the cab, a pintle-hook, and an air-horn.

The engine, having a bore and stroke of 5" x 5¾" and a displacement of 677 cu. in., develops 152 h.p. and a torque of 491 ft.-lbs. A 13", two-plate clutch is used and a 4-speed transmission with FWD dual-range transfer-assembly is embodied in each unit. The wheelbase is 150". As is standard FWD practice, two entirely independent sets of four-wheel brakes are used, the service brakes being air-operated.






ABOVE is shown the smooth wall and floor construction in Highway's new semi-trailer, leaving no cracks or obstacles on which lading might catch. . . . The side-view, at the right, shows the new streamlining and modern appearance of the same job, featuring what they call "auto-body" construction.

# HIGHWAY "FREIGHTMASTER" TRAILER

IMPROVEMENTS in the new model "40" *Highway Freightmaster* semi-trailer, illustrated above, follow trends set by other branches of the automotive industry. This job is brand-new, from frame to roof, according to engineers of The Highway Trailer Company, Edgerton, Wis.

Modern streamlining is emphasized by the makers, which, together with improved design and proportion, bring a new standard of light weight and durability to the Highway line of semi-trailers, particularly to this van-type body which is just announced.

Body panels of the *Freightmaster* are of special, high-finish steel. All joints are protected by decorative metal strips on the outside of the body. Inside, the walls and floors are smooth, with no cracks or obstructions on which objects might catch.

As standard equipment the new *Freightmaster* has a new, powerful, fast-acting brake. This is designated as the "Highway Factory-Built Mountain-Type" brake. It has few moving parts and is provided with slack adjusters for quick, easy adjustment. Vents are provided, to keep out dust and dirt and to facilitate the dissipation of heat.

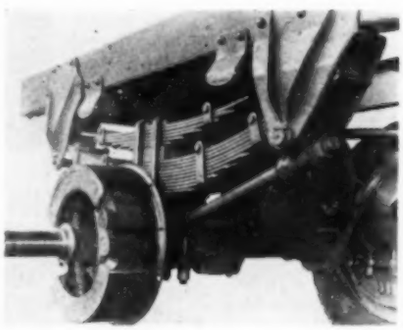
Other features include the heavy-duty axle (also illustrated), utilizing progressive-type, flat-end springs; adjustable radius-rod construction; Timken bearings; etc., which contribute to free-rolling characteristics.

The makers declare that in this new product, advantage has been taken of modern engineering practice, and the use of special, light-weight materials, which, together with refinements in design, help to cut down the dead weight materially, and thus making it possible to haul greater pay-loads and reduce the non-revenue load, when the semi-trailer is empty or only partially loaded.

As the illustration shows, the streamlined effect is carried through to the rear, and is enhanced by flush-type doors, made possible by a new concealed door mechanism, which eliminates all closing and locking obstacles, it is claimed.

Highway engineers report that new "line-production" factory methods are being followed in the production of the new Model "40" *Freightmaster*, which is built complete, including the body, in the plants of the Highway Trailer Company.

For interesting literature and full specifications, address Mr. W. Pedley, c/o Highway Trailer Company, Edgerton, Wis. . . . You'll mention this announcement in FLEET OWNER, won't you?



SHOWING the new Highway brake, progressive flat-end springs and adjustable radius-rod.

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### World Transportation Survey

PUBLICATION of a report on changes in transport control methods in foreign countries was announced recently by the Transportation Division of the Department of Commerce, Washington, D. C.

*"Transport Control Abroad,"* compiled by W. Rodney Long under the supervision of Thomas E. Lyons, Chief of the Transportation Division, summarizes recent developments directed toward the coordination or regulation of transport services.

The report was undertaken at the request of the Interstate Commerce Commission and was carried out under the general direction of Fletcher H. Rawls, Assistant Director of the Bureau of Foreign and Domestic Commerce. It complements an earlier publication entitled *"Railway and Highway Transportation Abroad,"* issued in 1935.

From the nature of the data available in the new publication, it would appear that in no country in the world has actual coordination of nation-wide transport service been achieved. The report also points out that while much legislation has been enacted in the past five or six years, very little of this has been effective in actually coordinating transport services.

## New Ford Speedometer Simplifies Shifting

A NEW "Shiftoguide" speedometer, which is said to be one of the most valuable aids to economical truck operation developed in recent years, has been introduced by the Ford Motor Company as standard equipment on all Ford trucks, except the ¾ and 1-ton types.

The new instrument does away with guess-work in gear-shifting, and does virtually everything that a

tachometer would do for the truck operator, according to Ford engineers. It makes reduced engine wear and improved operating economy possible even for inexperienced operators, it is claimed.

The dial of the "Shiftoguide" speedometer shows at a glance the correct speed ranges in which the truck should be operated in low, second, third and high gears. As the speedometer-pointer crosses the line dividing the different ranges, the operator knows that is the correct time to shift the gears, up or down, as load and road conditions demand. He doesn't have to rely on experience, instinct or "feel" to get best results from his truck.

The "Shiftoguide" speedometer is calibrated to show that gears should be shifted as follows when accelerating: Low to second at 6 miles per hour; second to third at 12 miles per hour; and third to high at 26 miles per hour. When pulling loads up long grades, the proper speeds for shifting to lower gears are the same as those above, but in the reverse sequence.

According to Ford engineers, the use of the new speedometer does these things:

1. *It avoids racing the engine and thus saves gas, oil and wear-and-tear.*

2. *It enables the operator to get maximum pulling-ability, making it easier for the truck to pull the load, giving better gas mileage and helping the operator to make faster time on a run.*

The engineers explained that truck engines develop their greatest pulling-ability within a definite range of engine speeds. Because of this, in order to provide maximum performance, it is necessary to keep the engine running in the speed range where maximum torque is being developed, and then to shift gears according to road requirements.

When an operator is accelerating a big load in low gear, there is a tendency to speed up to more than six miles an hour, not realizing that this means racing the engine and shortening engine life.

Or suppose an operator is pulling a grade in high gear and the truck begins to slow down. By shifting down to third speed at 26 miles per hour, as recommended by the "Shiftoguide" speedometer, the operator is able to take advantage of the maximum pulling-ability of the engine. If he should wait until the speed dropped down much below that figure before shifting to third, he would probably find that the pulling-ability of the engine had dropped so much that it would be necessary to shift to second.

●

## Highway Use Vital to Cooperative Unit

THE CONSUMERS Cooperative Association, with headquarters in North Kansas City, Mo., recently reported that its eleven trucks traveled almost 1,000,000 miles during the year ending June 1, 1939.

Refuting statements that trucks do not contribute to the support of the highways, the association's records show that the operation of those trucks involved payment of more than $6,000 in transport licenses and wheel taxes, in addition to gasoline taxes and other special fees.

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## U. P. S. Drivers Win Another Safety Contest

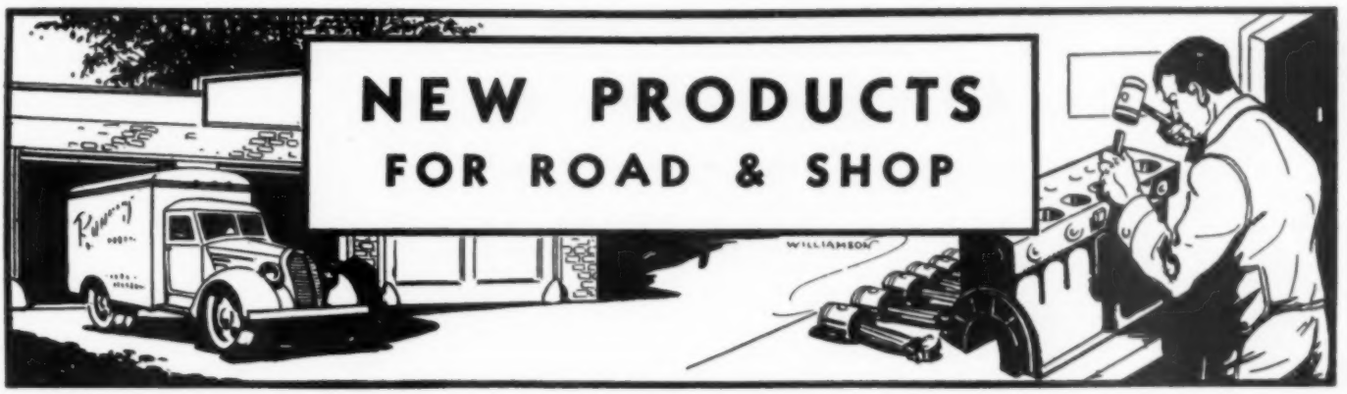
DELIVERY CAR drivers at the Hempstead, Long Island, station of United Parcel Service recently received the National Safety Council trophy for winning a nation-wide safety contest open to department store fleets which operate 250,000 miles or more a year.

The Hempstead men, having had only 8 accidents in 568,000 vehicle miles—a rate of 1.41 accidents for each 100,000 miles—now have the distinction of being the safest department store delivery drivers in the country.

This is the fifth consecutive year in which some one or more United Parcel Service units have won the National Safety Council awards. The company's San

Mateo, California, drivers also won first place for 1939 in the small fleet division embracing fleets doing less than 250,000 miles.

Presentation of the trophy was made by T. R. Johnson, United Parcel Service vice-president and director of personnel, to Jack Elliott, station manager, in the presence of Hempstead Chief of Police Rickert who complimented the men on their splendid record.



# NEW PRODUCTS FOR ROAD & SHOP

## "Super" Brake Fluid

THIS new brake fluid is claimed to have been designed specifically for fleet use, on heavy-duty vehicles equipped with hydraulic brakes.

Advantages pointed out by the maker include: (1) Non volatile, with unusually high boiling point. (2) Complete freedom from vapor-lock. (3) Non-gumming, eliminating the necessity for flushing. (4) No deteriorating effects on rubber and metal parts. (5) Very high lubricating qualities. (6) Operates perfectly at temperatures to 50° below Zero Fahrenheit. (7) Chemically stable; will not break down. (8) Fully miscible with all other brake fluids.

The above claims of the manufacturer will be backed up, with a generous trial sample, free to responsible fleet operators. For yours, write directly to Alexander Beach, c/o Puritan Soap Company Rochester, N. Y., who will be pleased to learn that you read this in FLEET OWNER.

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## A Free Sample is Yours

FOR THE ASKING you may obtain a free sample of the "Champion" Clutch Chatter Silencing Kit, if you should be experiencing this difficulty in Ford cars or trucks.

The "kit" contains two special rubber engine mountings, the purpose of which is to reduce excessive motor

"float," while the two motor stay-rod bolts, also furnished, tie the motor in position at the transmission end.

If clutch chatter troubles you, a free sample of this accessory is yours, on request. Write to Champ-Items, Inc., 6191 Maple Ave., St. Louis, Mo., mentioning FLEET OWNER for prompter service.

## Dietz "Sealed-Beam" Lamps

THE 100-year-old R. E. Dietz Company, New York, N. Y., is among the first of the lamp manufacturers to offer replacement "Sealed Beam" headlamps—complete with shell and mounting bracket. The unit was developed jointly by Dietz and General Electric engineers, and will be offered to replace previous types of headlamps, and also as auxiliary headlighting equipment, to be mounted below the regular headlamps.

Guaranteed as a true "Sealed Beam" unit, the Dietz No. 809, illustrated here, meets the standard specifications of all 1940 models. The lamp proper is an all brass fixture with heavy chrome finish. It is available either in pairs with fused switch connection for tail-lights, and universal bracket mounting to supplement old-style headlights; or singly, with non-fused switch, for use as an auxiliary driving-light. The bracket is made of heavy malleable iron, with cadmium finish.

Advantages of "Sealed Beam" headlighting include: Safer, more comfortable night driving; farther, wider-angle road illumination; faster view of hazards ahead; less eye-strain; glare-free traffic beams; safer passing, with more light to front and right; longer, full-power lamp life; less maintenance expense; and more efficient, time-saving service, without disturbing existing equipment.

The G-E "Sealed Beam" Mazda unit, which forms the heart of the new Dietz lamps, is made of heat-resisting glass, with a highly efficient reflector surface. Its accurately-moulded lens is hermetically sealed to the reflector portion of the unit. Descriptive literature, information and prices may be obtained by writing to the R. E. Dietz Company, 60 Laight St., New York, N. Y., mentioning FLEET OWNER, if you please.

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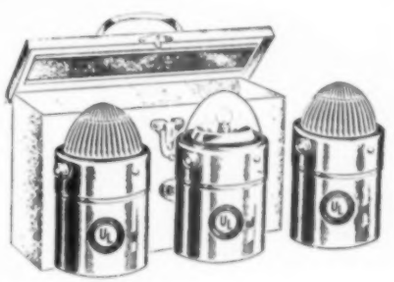
## "Ecolite" Electric Flares

THESE new electric flares are said to comply with the I.C.C. regulations, and also are approved by the Underwriters' Laboratories for use as warning or danger signals. In their manufacture, the specifications of the S.A.E. and the Bureau of Standards were also followed.

Construction details include an all-steel body and cover, made of 24-gauge material and finished in bright red enamel. They are equipped with a heavy ruby red lens and brass contacts are used throughout. The weather-proof switch is of the rotary type, with positive on-and-off positions. The lamp is a Mazda No. 502, having a rated life of 75 hours, and the battery is a standard 6-volt lantern battery, which should be good for from 60 to 80 hours of use.

The makers claim that the new flare is weather-proof, vibration-proof and dust-proof. Visibility is said to be as much as one mile under normal conditions. A highly-polished nickel re-



flector concentrates the light rays in the lens, giving off a strong red light. A compact steel box is furnished, to hold three flares securely and safely. . . . For further details address P. A. Richardson, c/o Economy Electric Lantern Co., 3100 W. Cherry St., Milwaukee, Wis. . . . It's always appreciated when you mention FLEET OWNER.

### New Hansen Hinge

ANOTHER new product recently added to the immense line of Hansen body hardware is the new Hansen square-corner hinge, illustrated here.

This new Hansen hinge permits truck body doors to swing wide open, and flush with the side of the body, thus leaving the loading space completely free.

For further information and your free copy of the new Hansen truck-body hardware catalog, address J. M. Haggard, c/o A. L. Hansen Mfg. Co., 5043 Ravenswood Ave., Chicago, Ill. . . . We always appreciate it when you mention FLEET OWNER.

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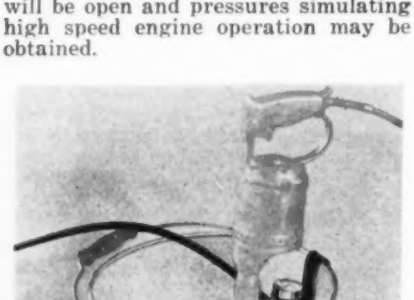
### Bearing Leak Detector

A COMPACT oil-leak detector, designed to work the same as the the oil pump and lubricating system of the engine, is announced by Hastings Manufacturing Company, Hastings, Michigan.

Built on a new principle, the Hastings Bearing Tester incorporates a gear-type pump with a by-pass valve and pressure-gauge, which delivers oil to the bearings at approximately 45 pounds pressure. The by-pass valve is set to open at 45 pounds. The drive shaft is designed to fit any standard ¼-inch (or larger) electric drill. With this predetermined working pressure it is assured that the by-pass valve on the engine being tested will be open and pressures simulating high speed engine operation may be obtained.



The Hastings tester is portable, weighing slightly under three pounds, and measures approximately 10 inches by 5 inches by 2 inches. It is equipped with a spring-steel handle which clamps over the edge of any five-quart can, pail or container and operates on two quarts of S. A. E. No. 10 oil. By dropping the pan and attaching the hose to the oil pressure system of the engine, the mechanic can detect any bearing leaks or stoppages in the oil system.

It can be used for determining the need for new bearings or adjustments, before overhaul work is undertaken, and also for a check-up of the functioning of the oil system, after reconditioning.

For full details write to George Hebden, c/o Hastings Mfg. Co., Hastings, Mich. . . . You'll mention FLEET OWNER, won't you?

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### Webster Certified Treads

WEBSTER Rubber Company, Warren, Ohio, sponsors of "*Websterizing*," have developed a method of "certifying" the tread rubber used by retreaders.

The camel-back henceforth produced by this company will contain a small red "W" which appears in the non-skid pattern of the tire *after* it has been retreaded or recapped.

The makers declare that this mark should effectively serve the purpose of identifying the rubber used, and also insure the fleet operator's getting the brand of rubber which he specifies.

A variety of literature is offered by this company, describing and illustrating various methods of retreading and recapping truck tires; a supply of Tire Record Cards is also offered, in order to help operators keep accurate costs of their tires.

If this literature is desired, you may obtain same, free, by addressing J. J. Smith, c/o Webster Rubber Company, Warren, Ohio. . . . Mention of FLEET OWNER always helps.

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### "NuZip" Tune-Up Oil

THE PENNZOIL Company, Oil City, Pa., announces "Nu-Zip"—a new automotive purging oil that is said to remove gums, sludge deposits and varnish from valves, pistons, cylinder-walls and other motor parts.

In addition to motor use, "NuZip" can also be used in cleaning overdrives, transmissions and differentials. . . . For further details address Victor Benson, c/o The Pennzoil Company, Oil City, Pa. . . . Mention of FLEET OWNER always helps.

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### Two New Michiana Filters

MICHIANA Products Corporation, Michigan City, Ind., announces as an addition to their line of H-W Duo-Flo Oil Filters, two new models of the replaceable-element type, as illustrated here.

The elements are of the "duo-flo, double-depth" design, and can be replaced very easily by means of the screw-top cap.

In this type of filter the oil enters the inlet at the bottom, and divides itself—part passing through the lower filter, and the balance through the upper filter. The cleaned oil is returned to the motor through the outlet in the shell. Engine connections are arranged for by means of external flexible tubing.

For further information, model listing and price sheet, address R. N. Burckhalter, c/o Michiana Products Corporation, Michigan City, Ind. . . . We always appreciate it when you mention FLEET OWNER.

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### Tapered Brake Blocks

GATKE Corporation, Chicago, announces that wedge-shaped, tapered Gatke brake blocks are now available for automotive service.

These tapered blocks are moulded of Gatke brake lining materials and are furnished in sets, to fit the various brakes on which tapered blocks are standard equipment. For further details write to Mr. H. Boyle, c/o Gatke Corporation, 228 N. LaSalle St., Chicago, Ill. . . . Mention of FLEET OWNER always helps.

### Electric Windshield Wiper

CONSTANT, uniform wiping action —regardless of engine speed or load—is the main advantage claimed for the American Bosch "Neverstall" windshield wiper, a new electric model for trucks, buses and business

cars, recently announced by the American Bosch Corporation, Springfield, Mass.

Intended for commercial vehicles, this new unit employs basically the same principle as used in the windshield wiper sold by the American Bosch Corporation for the past four years. But the "Neverstall" has much greater power, it is claimed. It is of heavy-duty construction and will drive various sizes of arm and blade assemblies, even up to those with 12" arms and 14" blades. Electrically operated, it is not affected by the engine and therefore provides reliable uniform wiping action at all times—even when the engine is not running.

Designed for inside mounting, the motor is conveniently compact in size and installation is simplified by a single-hole mounting arrangement. It is available in three different wiping angles—85, 110 and 135 degrees.

Wiping arms are adjustable in length so that the cleared area may be adjusted to suit individual driver's requirements. Wiper blades have ten wiping edges and a spring control feature to prevent chattering.

All metal parts of arms and blades are of stainless steel or other corrosion-resisting metals. For further information, prices, etc., address Charles L. Shedd, c/o American Bosch Corporation, Springfield, Mass., mentioning FLEET OWNER, if you please.

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### Fruehauf "Log-Books" Popular

MORE than 100,000 log-books have been supplied to truck and trailer operators engaged in interstate hauling by the Fruehauf Trailer Company, reports Weldon D. Wise, advertising manager. They are now being employed in every state in the Union and the company has received many congratulatory messages on its enterprise in supplying these books at a saving to the operator. The daily log-book is required by the Interstate Commerce Commission and they are a part of every interstate truck driver's equipment.

The Fruehauf company has purchased them in sufficiently large quantities to enable them to sell the books to operators at 5 cents each. This represents a saving of several cents on each book to average purchasers.

So popular has this idea proven that all of the Fruehauf branches and distributors, through whom they may be secured, report that they are being swamped with requests for them. A second edition has already gone to press. The new edition is printed in red ink so that black pencil, used generally by the drivers shows up clearly on the forms which must be filled out.

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### Portable One-End Lift

A NEW portable "one-end" lift, operated by air pressure, is offered by the Kellogg Division of American Brake Shoe & Foundry Co., Rochester, N. Y.

The lift, illustrated, is mounted on strong, substantial wheels, permitting it to be moved in the manner of a floor-jack, to any point, either indoors or outdoors. It can be operated wherever an air-hose will reach, and on the pressure that is normally maintained by the average compressor.

Lifting arms and cradle set low to the floor, as in a floor-jack, and will raise either the front or rear of the

vehicle to any working height up to five feet. An automatic safety-lock secures the lift in raised position at several different heights. A shelf for tools and materials is built into the lift.

This new lift is designed for lubrication, washing and countless service operations, to fill the gap between floor-jacks and the full-lift, and to supplement the service of the full-lift, during peak service operations. . . . For further details address J. F. Weller, c/o Kellogg Division American Brake Shoe Company, Rochester, N.Y. . . . It's always appreciated when you mention FLEET OWNER.

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### Grigsby Collision Switch

A RECENTLY improved model of the Grigsby Collision Switch is announced by Elsbert Manufacturing Co., Chicago, Ill., for the prevention of vehicle fires due to collision and tipping over. It is, of course, approved by Underwriters Laboratories.

Unlike previous switches of this class, the Elsbert switch is entirely mechanical and not only operates in case of over-turning but also in case of collision in front, back, or from

either side, even though the vehicle remains upright.

Most motor transportation fires are said to be as the result of collision or of overturning of the vehicle, because of its leaving the road. By cutting off the ignition in either of these cases, the hazard of a spark igniting the leaking gasoline is thus removed.

Because of the simplicity of its design, this new collision switch is priced very low. It is adaptable to passenger cars, as well as trucks, buses, etc. . . . For full information write the Elsbert Manufacturing Co., Inc., 353 West Grand Avenue, Chicago, Ill. Kindly mention FLEET OWNER; we always appreciate it.

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### "Double Service" Chains

WESTERN Chain Products Company, Chicago, announces the addition of a new patented-link tire chain, known as the "Double Service" tire and emergency chain.

The new link design and construction embodies two extra gripping fingers, double-welded and double thick at the points of wear. The links are placed close together to provide maximum traction, yet the chain is flat, it is claimed, and rides smoothly on pavements.

This new product is available in the regular full-circle type chain, and also as emergency units. For more complete information write to Western Chain Products Company, 1815 Belmont Avenue, Chicago, Ill. . . . You'll mention FLEET OWNER, won't you?

### "Ho-Zof" Degreaser

A NEW degreasing fluid, called "Ho-Zof" is announced as an addition to the "Whiz" line of automotive chemical specialties.

"Ho-Zof" is said to be powerful and safe and especially recommended

by the maker for use in cleaning motors, externally. In use it is mixed with kerosene, forming a powerful degreasing solution that will clean thoroughly all motor parts, chassis parts, wheels, springs, axles, garage floors, etc. After applying it, it is hosed-off with water. It will not harm hands, paint or metal parts, the makers state.

For complete details, prices and fleet discounts address Fred Mitten, c/o R. M. Hollingshead Corporation, Camden, N. J., mentioning FLEET OWNER, if you don't mind.

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### Magnus Sludge Remover

MAGNUS "Met-affin" is the name of a new product announced by the Magnus Chemical Co., Inc., Garwood, N. J., for use in the prevention of sludge, the removal of sludge and carbon, and the protection of lubrication in motors.

As described by the manufacturer, Magnus Met-affin is a penetrating, surface-active solvent which rapidly removes and absorbs sludge and carbon deposits, prevents sludge reforming and protects lubrication. It is claimed that a Met-affin treatment thoroughly cleans and purges the internal parts of any motor, and keeps them clean.

Magnus Met-affin has been carefully checked against all the requirements for motor purging. In addition to its effect in removing sludge and preventing its re-formation, Met-affin is guaranteed harmless to the motor and the bearings. It contains no sulphur, phosphorus or chlorine compounds and is free of graphite. It is neutral and non-corrosive; its combustion products are likewise non-corrosive, it is stated.

The active principle of this product —a brown oily liquid—is derived from hydrocarbons, analogous to them, compatible with them, but possessing valuable properties which they lack, according to Magnus engineers. Met-affin, added to lubricating oil in the crankcase, is stable, and effective throughout the use of the oil.

Met-affin is not to be considered as an oil-treating agent. It is added to the lubricating oil as the most convenient method of ensuring its presence throughout the motor interior. It works in conjunction with the oil.

It is announced that Magnus Met-affin has other worthwhile uses in breaking in a new motor, for lowering the congealing point of lubricant in transmission and differential in winter, for top cylinder lubrication, and as a "penetrative oil". . . . An interesting folder has recently been issued, giving pictorial proof of the claims made. For your free copy address Herb Mercready, c/o Magnus Chemical Company, 36 South Ave., Garwood, N. J. . . . Mention of FLEET OWNER is always appreciated.

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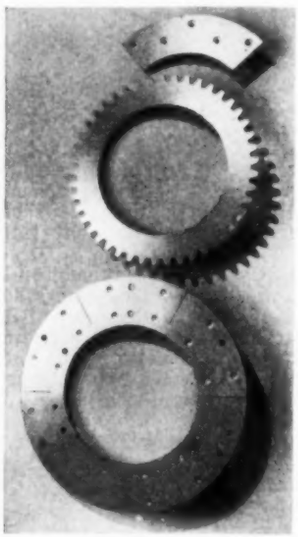
### "Velvetouch" Clutch Facings

THE "Velvetouch" Clutch Facing is made of a bi-metallic friction material developed fifteen years ago by the S. K. Wellman Company, Cleveland, Ohio, and now marketed by them.

This unique type of clutch facing (all metal) was made possible by the development of a welding process whereby flat segments of metal clutch facings are made from powdered metals, graphite and other substances—all of which are welded to flat steel segments, thus providing the "bi-metallic" construction.

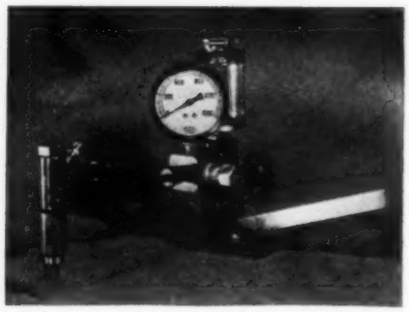
Advantages claimed for the new facing are as follows: resistance to high temperatures; slow wear, uniformity of operating and friction properties. "Velvetouch" facings are now available to replace standard woven or moulded asbestos facings, and are being used by many large fleet operators, it is claimed.



In addition to a complete line of replacement facings, Wellman is also offering a line of replacement clutch plate assemblies for cars, trucks and buses. . . . For free copy of the new catalog listing all models, prices, etc., address The S. K. Wellman Company, 1381 E. 49th St., Cleveland, Ohio. . . . Fleet operators in the Metropolitan New York area, for prompter service, are invited to correspond with Auto-Lectric Distributors, 1991 Broadway, New York, N. Y., who are handling the complete line.

### Diesel Injector-Tester

A COMPACT, portable hand-pump for testing Diesel fuel-injectors is illustrated here. It is designed to permit the user to check all size injectors of all standard makes, including Deco, Timken, Bendix, Bosch, Caterpillar, Hesselman, International and others.



The average mechanic, it is claimed, can easily measure injector opening pressure and determine the correct adjustment. He can tell whether the spray pattern is uniform, and can detect other irregularities such as stuck needle valves and dribble or leakage around valve seats. Opening pressure can be tested without removing the injectors from the engine block.

The Deco injector-tester, as it is called, stands 9" high and weighs 6 pounds. Handle is detachable. The base measures 4¾" x 2½". It can be carried around, or bolted to the bench, as desired. The plunger, barrel, suction-valve and delivery valve of this tester are identical with those used in Deco's regular fuel-injection pumps. . . . For further details address Diesel Equipment Corporation, 4401 N. Ravenswood Ave., Chicago, Ill. . . . We always appreciate it when you mention FLEET OWNER.

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### Shock-Absorber Tool

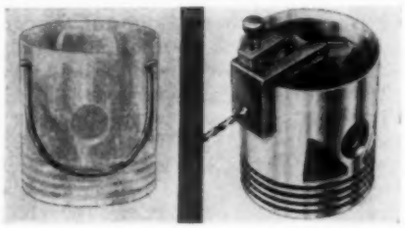
A NEW TOOL, enabling the service man to rebush shock absorber arms and links without removing the absorber or the link from the car, has been developed by United Motors Service. The unique tool, entirely new in its application, is revolutionary in principle, saves time and simplifies an operation that heretofore has been a long and tedious one.

The rebushing tool is so designed that it can be operated handily on all types of Delco shock absorbers. It utilizes the screw principle to press out the link-pin and old bushing. The new rubber and metal bushings are then pressed into place by applying the pressure of the screw.

This new Delco shock absorber rebushing tool is provided along with an assortment of service parts designed to cover the needs of all operations involved in the refilling and servicing of Delco shock absorbers. . . . Write to Foust Childers, c/o Delco-Remy Division, Anderson, Ind., mentioning FLEET OWNER, if you don't mind, and further information will be immediately sent you.

### Hastings Piston Expander

A NEW piston expander, designed especially for cam-ground "U" slot pistons, has been announced by the Hastings Manufacturing Company, Hastings, Michigan. These ex-



panders provide spring tension which is said to effectively restore cam-ground pistons to their proper shape and fit in the cylinders. Pistons are thus stabilized and provided with uniform wall-contact on the thrust surfaces, it is claimed.

A special jig is available for drilling holes in the piston skirt into which the two ends of the "U" shaped expander fit. This construction is said to insure positive locking against movement or disengagement, so that the expanders can neither rattle nor fall out.

For further information write to Geo. Hebden, c/o Hastings Manufacturing Company, Hastings, Michigan, mentioning FLEET OWNER, if you don't mind.

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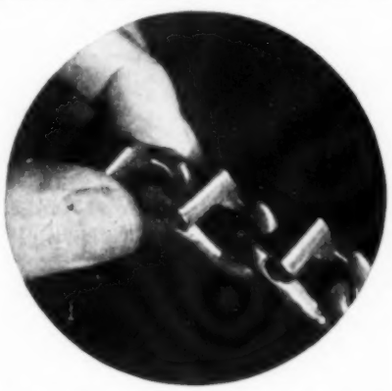
### "Bridge of Steel" on Chains

REINFORCING bars that act as a "bridge of steel" across the contact links of Weed American Bar-Reinforced Tire Chains, are one of the features being stressed by the American Chain & Cable Company, Bridgeport, Conn.

The illustration shows how the reinforcing bar extends *across* from one side of the link to the other side, and thus reinforces the contact points and ties the link together with a bar. It is electrically-welded at two points, to increase the ability of the



tire chain to withstand impact shock, and also to provide added resistance to wear.

A "heel and toe" action of the bar, when the wheel is in motion, also adds gripping traction on slippery roads. First the heel (one end of the bar) digs into the ground, then the foot "tips" until added traction is obtained from the toe—the other end of the bar.

For further details write to American Chain Division, Bridgeport, Conn., mentioning FLEET OWNER, if you don't mind.

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### Globe Offers "Stop-Spill"

GLOBE-UNION, Inc., Milwaukee, Wis., offers the new "Stop-Spill" vent on all future production of Globe Batteries. It is said to provide fool-proof protection against overflowing of battery-acid.

The "Stop-Spill" device, as shown in the illustration, consists of a flat, lead ring, inserted in the cell cover, on top of a sloping shoulder which has been turned there. When the cap is removed, the washer lies flat on the slope, providing a valve-like action permitting the addition of water, but closing the air-escape channel.

When the cap is replaced, its lower surface causes the lead washer to tilt flat, and thus uncover the air-escape channel, permitting the battery to "breathe" normally. When the solution level has been restored to its normal operating depth, the air-locking washer automatically prevents further filling, without care or effort on the part of the person filling the battery. While the battery is on charge, the vent caps can be left in place, to hold the lead washer up and away from the air channels.

Additional facts and descriptive material on this new type of safety vent may be obtained from R. P. Hammond, c/o Globe-Union, Inc., Milwaukee, Wis. . . . You'll mention FLEET OWNER, won't you?

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### "Rubber-to-Metal" Cement

HERE is a brand new rubber cement that is claimed to stick rubber to metal and make a permanent bond, regardless of time or climatic conditions. It is called "Griptite."

For a long time there has been a demand for a water-proof cement that would stick rubber to metal permanently. After lots of laboratory work, the St. Louis Rubber Cement Company has offered its new product to the trade.

It is claimed that "Griptite" will stick rubber to concrete, Bakelite, polished marble, aluminum, fabrics and all kinds of metal. It is cohesive as well as adhesive and the formula contains an anti-oxidant. Application is easy, and drying is quick.

For small free sample address Wm. Hadley, c/o St. Louis Rubber Cement Company, 3498 West Pine St., St. Louis, Mo., mentioning FLEET OWNER.

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### New Penetrating Oil

PRACTICAL men in automotive shops have long realized the high-penetrative effectiveness of "gas-drip oil,"—a nauseous, headache-producing product of the gas-house works. It quickly dissolves and penetrates rusty nuts and frozen connections. Ignoring its toxic properties, "gas-drip oil" has been widely used by shop mechanics who found that it really did work where many other light oils failed.

Now chemical research has enabled the chemists of The Curran Corporation, Malden, Mass., to announce that they have found the active chemical present in the crude gas-house "drip oil" and have isolated and separated the active ingredient into a sparkling clear aromatic solvent with no unpleasant odor. It's said that the new solvent has lost none of the good, high-penetration qualities of "gas-drip," but that it is safe and pleasant to use.

In spite of the purity of the new product, it will generally sell at a cost equal to or less than the gas-house sludge product could be purchased for. The new composition will be branded "Motor Fizik," and will sell as an all-purpose penetrating engine tune-up oil in bulk size containers. Descriptive literature is available. Write to A. F. Curran, c/o The Curran Corporation, Malden, Mass., mentioning FLEET OWNER, if you don't mind.

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### Felt Chart and Samples

A COMBINED felt chart-and-sample file is offered by Booth Felt Company, Brooklyn, N. Y. It contains actual felt samples bound into a standard 8½" x 11" chart file, classified according to S.A.E. specifications.

The chart lists a wide variety of applications for each felt shown, so

that, by quick reference to the chart and samples, the user's selection of the correct type of felt for almost any purpose is greatly simplified.

Fleet operators interested in this product may obtain a free chart-and-sample file by addressing The Booth Felt Company, 434—19th St., Brooklyn, N. Y.

# COLONIAL *is* STRONG *for* PREVENTIVE MAINTENANCE

(*Continued from page* 16)

Diesel engines we use. At this time all injectors and fuel-pumps are thoroughly cleaned, reassembled and tested; then they go out to the garages, to be kept in stock for replacement at the next period designated by the preventive maintenance program.

"It is important to note that there is no 'mystery' about these Diesel engines, their fuel-system or equipment. Any mechanic with average intelligence can disassemble, test and reassemble the entire fuel system, which is very simple. In our particular case, our master mechanics received a little something in the way of 'special education.'

"Since the engines were going to be considered as only *one* part of the complete vehicle, it was felt that it would be more practical to keep our present mechanics—rather than to add Diesel school 'graduates,' who would need to be trained in all of Colonial's other maintenance methods. In this connection the Cummins Engine Company cooperated by giving two weeks of actual training and practical instruction to each of our master mechanics, directly in the Cummins service station here, for which we are quite grateful.

"By thus 'priming' the lads—a complicated course in Diesel engineering was *not* required—they rapidly became Diesel 'experts' from the *practical* side of the picture, and in a very short time, too. This seems to have worked out splendidly, and we can recommend a similar procedure to other fleet operators who might be considering using Diesels.

"A great many of the inquiries which we get regarding our maintenance program include questions on Diesel lubrication, so we will be sure to get in something on that subject.

"First, we use the *same* type of oil that we used in our gasoline engines. No 'special' oils have been found necessary, and we find that we can get the best economy and efficiency out of a straight (untreated) petroleum motor oil. And we have experienced *no* stuck piston rings, in case you might ask, and no bearing troubles, either.

"A built-in oil-filter comes in the base of every Cummins engine. To assist the operation of these 'master' filters, through which *all* oil passes, we have decided to install an *auxiliary* oil-filter on each engine, one of the popular makes, using a cotton cartridge of special design.

"After comparative tests of oil-filters, on our gasoline *and* Diesel engines, we have decided to standardize on this one make, which has practically doubled our oil mileage between oil changes. However, because our oil and filter-change practice is still in the preliminary stage on the Diesels, our method of using these filters is somewhat different from the usual practice:

"With the Diesel engine oil-change period ranging from 100 to 250 hours, the filter cartridges are replaced at from 50 to 125 hours. In other words, two new filter cartridges are used for every Diesel engine crankcase change—as a minimum. Sometimes more, depending on the condition of the engine and the oil. We feel that filter-cartridges and oil are far cheaper than bearings, and that the continued performance of our trucks is more important than a few dollars in extra expense.

"However, may we again point out that this plan is only a preliminary one; after further experience, these periods may be lengthened—or, if increased consumption of fuel or oil is noted, or if piston ring or bearing trouble crops up, they will be shortened. But we do not think they will be shortened—they will be lengthened, if anything.

"We have been asked about fuel-soot and other forms of crankcase contamination, especially since our operation is one in city traffic, for a great part, with many starts and stops and considerable idling. We realize that fuel-soot getting down into the oil has a great bearing upon the fluctuation of cartridge life. Fuel-soot results, as a rule, from incomplete combustion, idling, starting, stopping and fluctuations of the load, temperature and ignition pressures. We also realize that if we had more 'over-the-road' operation, this might allow oil and cartridge changes at double our present figures.

"But we seem to be having very good luck, experiencing practically no fuel-soot. This is because, Cummins engineers tell us, we are using the very latest type of injectors, in which the plunger seats more perfectly and cuts off any 'drippings,' which are largely responsible for fuel-soot. Of course, you will ask us about smoke. The latter is brought about mostly by fuel-soot; and therefore, no fuel-soot, no smoke. We are *not* having any smoking troubles; definitely not.

"Many people ask us if we reclaim crankcase drainings. The answer is 'No.' We feel that we are getting very good use out of our oil, in conjunction with the filters, especially. Crankcase drainings are used in continuous-drip oilers for our chain drives—a practice that has increased drive-chain life as much as 7,000 hours per chain. In fact, we find that we do not have sufficient crankcase drainings to fill our demand for 'chain oil,' and we even have to go out and purchase such lubricant, from time to time. So we consider our used crankcase oil a good investment.

"Efficient cleaning of air is just as important as oil-filtering. Quality, oil-bath type air-cleaners are standard equipment on all of the new Diesel engines, and we rigidly adhere to the maker's instructions, washing and refilling the inner and outer cups in accordance with the directions—every 10 to 60 operating hours, depending on whether the condition is dusty or not. At this time, the oil-level is filled to the 'bead.'

"We have been using our regular motor oil for this purpose—S.A.E. 30 to 50 for temperatures above freezing; S.A.E. 20 when the temperature gets below freezing; and should it get below zero, we use S.A.E. 10 for this purpose. We find that a good air-cleaner materially helps to keep the inside of engines clean; it keeps the oil clean and lengthens the life of all wearing parts, such as cylinders, pistons, rings and bearings."

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### Truck Drivers' Guide

A DRIVERS' MANUAL, which tells how to keep operating costs down and to drive with maximum safety, is offered without charge by Dodge Truck Division of Chrysler Corporation.

Written in simple yet forceful language, the guide covers a variety of key subjects including the care and treatment of the truck engine; how to make tires last longer; importance of proper treatment of clutch, brakes and transmission; safety and courtesy on the highway; and numerous other topics important to truck driving.

The booklet was prepared originally for distribution at Dodge's "*Wheels of Progress*" exhibition; however, great demand for this "*Guide for Truck Drivers*" has forced Dodge Truck to make a second printing for fleet owners and operators. . . . Copies will be mailed free of charge. Write to Tom Moss, c/o Dodge Truck Division of Chrysler Corporation, Detroit, Michigan. . . . You'll mention FLEET OWNER, won't you?

## Many Fleet Men Attend Ethyl Conference

REPRESENTATIVES of commercial fleet operators, oil companies and manufacturers attended the conference on operating and maintenance problems at the Knickerbocker Hotel in Chicago, recently held under the direction of Errol J. Gay of the Ethyl Gasoline Corporation, in conjunction with the National Truck Show.

The opening session was devoted to a brief history of the internal combustion engine, a discussion of carburetors and their maintenance by E. F. Wenzel of the Stromberg Carburetor division of the Bendix Products Corporation; and a talk on spark plugs and fuel-pumps by Sumner Howard, service manager of the AC Spark Plug Company.

Later sessions included driver-training, future commercial engine development, elimination of exhaust-gas odors in city buses, valve materials and design, and a demonstration of engine inspection and tune-up on a chassis dynamometer. Other speakers included J. T. Fitzsimmons, Delco-Remy Company; A. T. Colwell, Thompson Products Company; C. R. Mason, B. F. Goodrich Company; M. C. Horine and David Fenner, Mack International-Motor Truck Corporation; and T. Bradshaw of the Perfect Circle Piston Ring Company.

The information thus made available to fleet operators on maintenance problems and developments in engines and fuels, was assembled through the nation-wide contacts of the fleet division of the Ethyl Gasoline Corporation.

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## Smith Retains "Best Truck Driver" Title

EDSON SMITH, of the Kirk Transportation Co., Detroit, successfully defended his title of "World's Champion Truck Driver" in the national truck drivers' rodeo held in connection with the recent Sixth Annual Convention of the American Trucking Associations in Chicago.

According to George F. Alger, president of the Kirk Transportation Company, Smith thrilled spectators with a performance more spectacular even than his brilliant exhibition of last year. In the skillful manipulation of heavy tractor-trailer equipment, he outclassed the best drivers from other states who had won their way to the finals.

Award of the Evans trophy, symbolic of world supremacy in truck driving, was made by Ted V. Rodgers, ATA president. Bronze trophies were awarded to the champion and runner-up by Harvey C. Fruehauf, president of the Fruehauf Trailer Company, Detroit. Second place was won by Frank Steed, of the Georgia Highway Express, Atlanta. Tied for third place were Charles Zimmerman of the Cushman Motor Delivery Co., Chicago, and Lee Kirkpatrick of the Columbia Truck Lines, Portland, Oregon.

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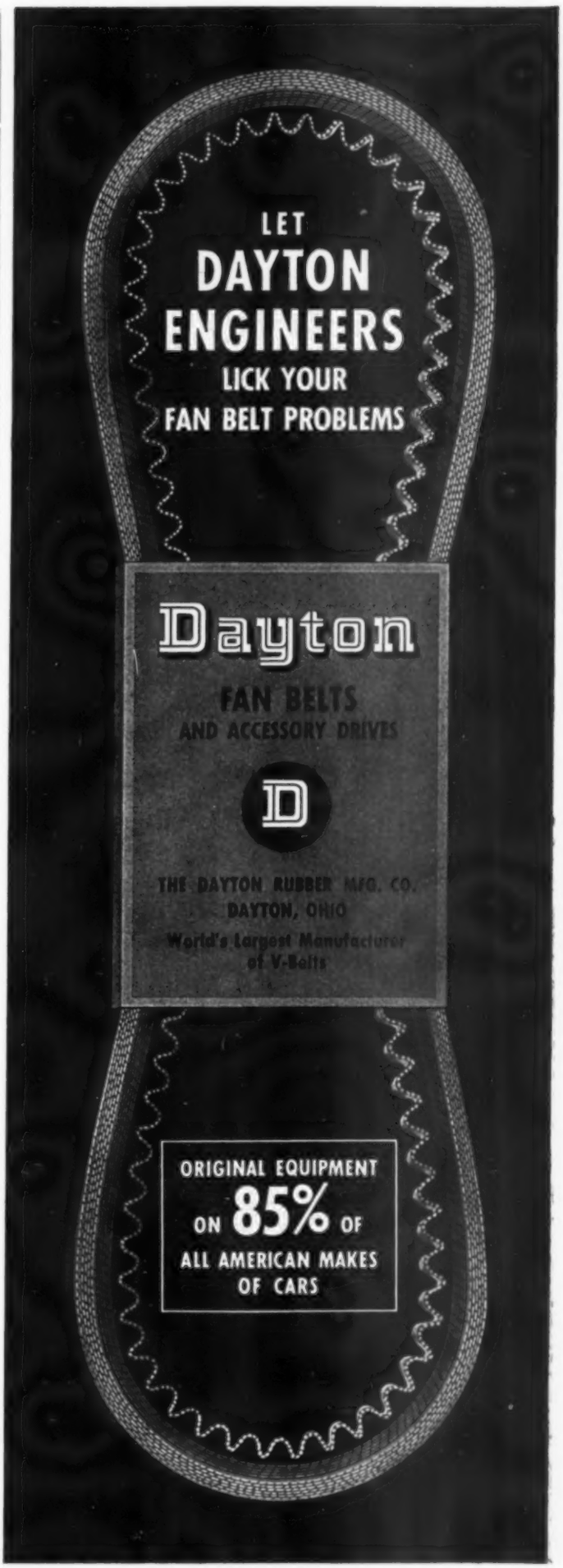
## Fruit Trucking on Coast Shows Increase

TRUCK receipts represented 81.5 per cent of the total fruit and vegetable unloads on the Los Angeles market in 1938, as compared with 59.9 per cent in 1928, according to the Federal-State Market News Service, Sacramento. Only one year since 1928—the year 1937—has failed to record an increase in that percentage over the percentage shown for the year immediately preceding.



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THE HARDWARE FOR HARD WEAR

## Ignition Survey

(*Continued from page 22*)

get, is seen in the answers to the next question which asked, *"Do you specify the make of coils and ignition parts when ordering for replacement?"* . . . The answers were "Yes"—186; "Sometimes"—19; "No"—27; "No Answer"—12. . . . It is but fair to point out that among those operators who replied "No" and "Sometimes", this is because in many instances it is *not necessary* to mention the makes desired. For example, when ordering ignition parts for Fords from Ford dealers, mention of any particular make would be not only superfluous, but silly. The same holds true among other truck dealers and factory branches. However, where the automotive jobber or authorized distributor is patronized (as you will see later) we'd say that the make desired is *always* mentioned.

Source of supply always being of interest, we next asked *"What is your source of supply on coils and ignition parts?"* . . . It seems that automotive jobbers and authorized distributors (such as United Motors Service) are getting most fleet replacement business on ignition parts. The answers were: "Authorized Distributors—120; "Automotive Jobbers" — 116; "Vehicle Dealer or Factory Branch"—66; "Parts Manufacturer"—6.

Believing that a few fleet operators *might* be patronizing the chain stores, we also included that in our questionnaire. Not one single fleet checked it, however—which ought to make a certain branch of the industry feel good. . . . It seems that only the really *small* fleet operator will patronize the chains, and since we don't reach the small ones, this lack of chain patronage is self-evident. . . . In going through the above figures it should be remembered that some fleets mentioned *more* than one source of supply, since some get certain things from jobbers and certain other parts from vehicle dealers or factory branches.

The question of whether it is better to rebuild or exchange for reconditioned units is perhaps answered by the replies to the next question, which asked, *"Where ignition units are exchangeable, which do you do?"* . . . . The answers were "Trade in for Rebuilds"—140; "Repair or Rebuild in Own Shop"—63; "Both"—14; "No Answer"—27. . . . So that should settle *that* question. Personally, we seem inclined to favor the exchange plan, provided that you can get actual factory-reconditioned units.

No article or survey would be complete without *something* on preventive-maintenance, so we next asked, *"Do you have a set period for checking ignition apparatus?"* . . . . The answers were "Yes"—152; "No"—89; "No Answer"—3. . . . Of those fleets which answered in the affirmative, the periods for doing such checking ranged from every 1,000 miles to every 18,000 miles, the popular mileage period running around every 5,000 miles. . . . Time figures were also given, ranging from every 2 weeks to once a year. Here the popular time period was about every month.

So you see, folks, preventive-maintenance on ignition and electrical apparatus is now being generally practiced by fleet operators. That it has certain advantages, especially the tendency towards reducing or eliminating road-breakdowns, is seen in the following remarks, which, incidentally have ben selected at random, and contain other points of interest. The conclusions which we have drawn at the beginning of this article will be found to have a definite relation to many of the remarks herein listed:

*"We have found that if electrical equipment is checked properly, there will be very few road-breakdowns."*

*"We have had considerable trouble with voltage regulators."*

*"Tungsten points seem to be of very poor quality nowadays."*

*"Original-equipment coils and condensers are too light; we replace with heavy-duty ones."*

*"Generators cause most trouble in our fleet; cut-outs and regulators are*

*next."*

*"We think that all standard-equipment ignition units could be improved upon."*

*"On low-priced trucks original-equipment coils and condensers do not last very long."*

*"There are too many types and sizes of spark plugs, making for large inventories. We have much trouble, too, with starter-springs, as ours is a door-to-door fleet."*

*"Better quality electrical units should be furnished as standard equipment, especially distributors and generators."*

*"We use high-priced coils and condensers for replacement, and find that it pays us. Original-equipment coils and condensers are too cheap and too light."*

*"A complete test of electric equipment and ignition at 10,000 mile periods has overcome all road-calls that were caused by ignition trouble."*

*"Most electrical parts on small trucks are just built to last for the guarantee period. After that it's just replace, replace and replace."*

*"Distributors could be simpler, and not need synchronizing so often."*

*"Condensers are replaced every 20,000 miles, or once a year—whichever occurs first. This has eliminated practically all of our grief."*

*"Original-equipment points are poor; high-speed points seem to stand up better."*

*"Check electrical equipment properly, and you'll have no road troubles."*

*"We heavy-duty users would pay more for better plugs and condensers, if we could be assured that they would give longer life."*

*"By regular inspections we have eliminatel almost all of our electrical troubles."*

*"Find very little trouble when a good regulator is used to control voltage."*

*"Very little trouble with ignition when properly checked on preventive maintenance basis."*

*"Our only complaint is quick deterioration of insulation on spark plug wires."*

*"Have eliminated most electrical troubles by replacing points, condensers and spark plugs every 10,000 miles. We overhaul starters and generators at 15,000 miles; we replace coils every 25,000 miles."*

*"We find that high-quality coils and condensers will last indefinitely."*

*"We believe that replacement of points and condensers on a mileage basis is most practical from an operating angle. This has reduced our lost time almost 100%."*

*"Points are just 'lousy'; other electrical equipment is not so bad."*

*"A little preventive-maintenance and our troubles are almost over."*

*"Have considerable trouble due to distributor-caps shorting inside."*

*"Have lots of trouble with voltage-regulators; we doubt their efficiency."*

*"There is still plenty of room for better ignition equipment; not easy to clean and align points; coils and condensers show some improvement."*

*"Close check of ignition system, when truck is in for inspection, eliminates most of our ignition failures on the road."*

*"Believe electrical systems have lagged behind in development."*

*"There seems to be a tendency to supply too small generators on tractors, especially where trailer is to be well lighted."*

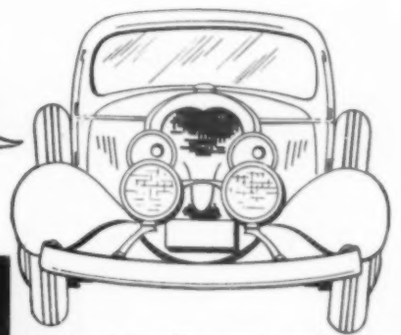
*"Factory-rebuilt generators do not seem to stand up under heavy loads."*

*"We find that proper electrical test instruments are very necessary."*

And that, folks is the story on electrical equipment. It is somewhat sad that we have had to find such a black picture and that we have been able to offer very little in the way of constructive information. It seems that we have just repeated the various headaches that other fleet operators are having, and there's very little that *we* can do about it.

It is not our job, for instance, to tell the truck manufacturers what kind of stuff to put in as standard equipment. We are simply reporting our findings, and it certainly looks as though there is room for improve-


WHO SAYS LIGHT BEGINS WITH '40 !



Think of it. The same comfortable, safe night driving afforded to 1940 car purchasers is now available for *any* vehicle, 1939 or older. Clear distant vision, without glare. 75,000 candle power that will not diminish with use as in old headlamps. No maintenance —longer lamp life—greater safety. Engineers of R. E. DIETZ COMPANY (century of headlight pioneers) have designed this most efficient safety lamp that meets all standards of 1940 specifications.

DIETZ NO. 809 SEALED BEAM SAFETY LAMPS come equipped with a one piece G. E. all-glass sealed beam bulbs, with high and low beam, heavy chrome plated, all-brass fixtures, cadmium plated universal brackets, 10 feet of silvered wire, sold singly with non-fused switch $6.80 list.
Packed in pairs with fused switch and tail light connection $13.15 per pair List.

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TRUCK FLARES - REAR VISION MIRRORS
FLOOD LITES - FIRE EXTINGUISHERS

The tremendous advantages of the new sealed beam lamps are offered to the fleet owner for all trucks, commercial cars and salesmen's cars of models earlier than 1940. Attached in pairs by means of universal brackets to bumper supports, they replace old headlamps.

WRITE FOR COMPLETE DETAILS

DIETZ NO. 809 SEALED BEAM
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THE TALK OF THE TRADE

● Everywhere Tyson Cageless Bearings are making a name for themselves. Fleet operators are singing their praises . . . talking about their ability to deliver increased capacity and longer life.

Tyson earns this praise by revolutionary construction. The cage of the conventional bearing has been eliminated and the in-between spaces filled with load-carrying rolls—assuring double life, greater capacity, maximum rigidity.

*Cageless* FOR HARD SERVICE *Cage-type* FOR REGULAR SERVICE

Tyson

TYSON ROLLER BEARING CORPORATION, MASSILLON, OHIO

ment. Perhaps a survey of this kind has been *needed?* If so, then give us a little credit for making it. We are somewhat pained to find so little satisfaction expressed among the fleets surveyed, but *there* are the facts, and it is quite possible that some of the conditions mentioned have already been remedied on the 1940 models? Vehicle makers are quite wide-awake, and do not hesitate to make needed improvements and changes, you know.

No doubt some will be interested in knowing how "representative" this survey is. The 244 fleets participating in it are located in 39 states and Canada, and are engaged in more than 30 different industries, including bus operation, in which 21 fleets are engaged.

These 244 fleets have an average of 162 vehicles each, so they can't be called *small* fleets, and their combined vehicle population is as follows: 22,464 trucks; 1,639 tractors; 2,448 trailers; 10,031 passenger cars; 1,990 buses; 329 taxicabs; and 735 miscellaneous vehicles—making a grand total of 39,636 vehicles.

So you see, this survey is *quite* representative. We would like to see a greater number of fleet operators participate in this monthly feature, in return for which you will get a private and personal copy of the *confidential* tabulation which we make. This contains all such information that we can't give here—such things as trade-names, etc.

This month's questionnaire promises to be unusually interesting. If you feel that you'd like to get the confidential report which it will bring, just turn to page 35, tear out the page, fill in the answers to as many questions as you can (or as you care to) and send it back to us. Rest assured that everything is kept *confidential*, and that your name is *never* mentionel to anyone, or at any time. It's your cooperation that we need to make this thing a success. Thanks.

●

### Chicago Truck Show

(*Continued from page* 28)

one exhibitor remarked, 'Women and children were conspicuous by their absence.'

"From a standpoint of showmanship, it was agreed by all concerned that this year's Truck Show presented a finer appearance, being well decorated in such a manner that all exhibitors' products were displayed to the best possible advantage, and none were hidden.

"Regarding future Motor Truck Shows, at the present time this matter is entirely in the hands of the exhibitors, the executive committee and the board of directors. However, in view of the enthusiasm shown this year by the participating exhibitors, it would seem that all indications point to another National Motor Truck Show next year."

Among the various types of different products exhibited at the Truck Show might be mentioned the following: Trucks (several major manufacturers), Engines (gasoline and oil-burning), Tractors, Trailers, Third Axles, Braking Systems, Snow Plows, Truck Tanks, Special Bodies, Truck and Trailer Axles, Oil Filters, Oil Reclaimers, Accessories, Replacement Parts, Governors, Truck Seats, Electrical Equipment, Gasoline Hose, Safety Lighting, Equipment, etc.

●

### Radios and Snow Plows

(*Continued from page* 27)

report back to headquarters when that particular special job is completed.

Mr. Cormier would have preferred to have equipped his fleet with two-way radio systems so that he could hold direct conversations with his truck operators, and so that they might also be able to report directly to him whenever they ran onto any unforeseen or unusual situation in connection with their work.

Mr. Cormier found, however, as many others under similar circumstances, that the installation of a two-

way radio involves complications with the Federal Communications Commission, which has appeared to be reluctant about granting the necessary permits. Possibly their reluctance may have been further increased by the incident which has been printed in reference to Mayor LaGuardia of New York, who is said, whimsically, to have called the Lord Mayor of London soon after a two-way radio outfit was installed in his official automobile.

The unit illustrated in this article is the one which so nobly performed in saving the woman's life last Winter. The close-up view of the inside of the cab was taken to show the installation of the radio receiving apparatus. As before stated, this system of radio communication ties in with the county police cars, and communication with the trucks is established through police headquarters. So far as is known, this is the first installation of its kind, for the better direction of highway department motor truck equipment.

As regards the unit illustrated, this is an Autocar Model 4X4CD, 157-inch wheelbase job, equipped with Autocar deluxe cab; Cummins HB-6 Diesel engine; 4 cu. yd. Heil steel body, 10 feet long; Heil hoisting equipment; and Good Roads snow-plow. Tires used are 13.50 x 20, singles rear.

•

### Modern Brakes

(*Continued from page* 29)

must stop, the importance of using the highest quality of brake lining obtainable becomes more apparent than ever.

A modern motor car with brakes in good condition can easily stop in four seconds from a speed of 60 m.p.h. This equals a stopping distance of 176 feet. Modern brakes are truly powerful when they can bring a car from 60 m.p.h. down to a standstill in *four seconds!*

In order to realize just how powerful these brakes are, consider, for a moment, how long it would take the motor of this same car to bring the vehicle, from a standing start, up to a speed of 60 m.p.h. With many cars it would not be done in less than half a minute and there are only a few automobiles powerful enough to do it in much less than twenty seconds. But even twenty seconds is five times as long as the four seconds required by the brakes to bring about the same change in speed. The motor of the modern car may have anywhere from 85 horsepower on up and, therefore, since the brakes are at least five times as powerful as the motor, we can safely say that brakes on modern cars have at least 425 horsepower and in some cases more.

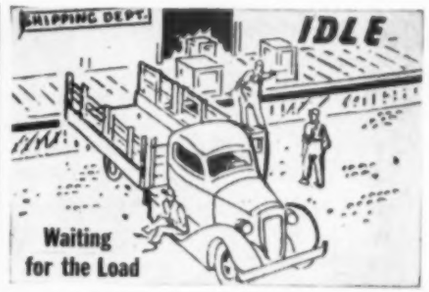
Now that we have learned about the tremendous amount of work which modern brakes are doing, the high heats which they must operate under and the great power required of them, it seems remarkable that they perform as well as they do, considering the small amount of care and attention they get.

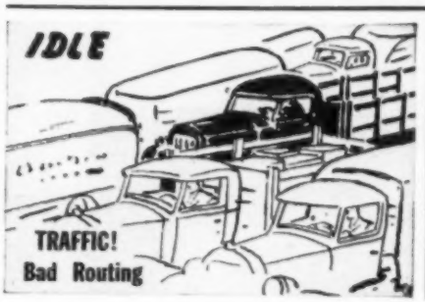
The motor has an elaborate cooling system to protect its working parts from the effects of heat. Large quantities of water are carried in the cylinder block and head and circulated by pumps through a radiator mounted in the best position to take advantage of the cooling breeze. There is also a fan which helps to keep the operating temperature of the motor low.

On the other hand, the brakes, which do the same amount of work five times faster than the motor does, are mounted behind the wheels down underneath the fenders. The present-day streamlining has brought the fenders down on the sides and ends, making it very difficult for cooling air to reach the brake drums and carry away the excessive heat. The brakes are mounted in positions which expose them to all the dirt and muddy water splashed from the road by the tires.

The motor has a highly efficient lubrication system which insures that parts intended to slide over one an-


DELAYS DELAYS DELAYS!



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● Truck delays are not always the driver's fault. Perhaps the office is responsible. And *that* discovery leads the way to truly enormous savings.

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COSTLY DELAYS!

Here's a truck that's up against a hold-up at the freight station, which could be corrected; here's a truck bucking rush hour traffic unnecessarily; here's a truck that needs a helper; here's a truck that's overworked, causing costly overtime!

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It's all a problem in TIME—and of course the *Servis Recorder* gives you all this information, on its chart, at a glance. It gives you the clue, it points the way to a proper arrangement of your whole truck system, where the driver is only a small part of your problem. Write for free booklet: "Ten Ways of Getting More Work Out of Motor Trucks."

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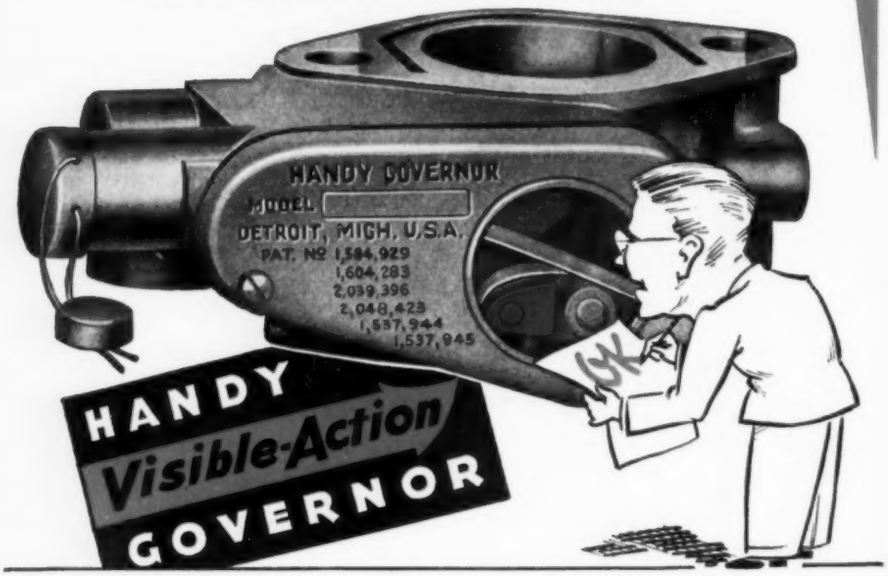



other can do so with a minimum of resistance. Braking systems sometimes have the correct amount of oil and grease in the correct places, but most often they have sufficient lubrication on sliding contacts and too much oil or grease in places where it does not belong, such as on the lining surface.

With all of this increase in work which the brakes have to do there has been little increase in the *size* of the brakes. In fact, in most cases the brake diameters are smaller today than they were a number of years ago. This has been made necessary by the use of balloon type tires with no increase in the outside dimension of the wheels. Everybody likes a low car and in order to keep the center of gravity down, the engineers must use small wheels. But for comfort they use large tires on these small diameter wheels. The result is that there is little room left for the brakes, and the drums must necessarily be of small diameter.

Thus we see that today's smaller brakes are called upon to do more work and to do it faster than ever before, with inadequate provision for removing the tremendous heat developed, and often with insufficient lubrication and other attention. All of this serves to emphasize the importance of using only the *best* brake lining, if satisfactory results are to be obtained. Of course, the other parts of the brake system must be in good condition and the brake work must be done properly. Future articles will discuss all of these points.

In the next installment, we will write about the various types of brake lining now being used and give a short description of the methods used in making each of the different types.

After we have covered brake linings we will take up brake drums, for they are also very important, since they share in the work of slowing down or stopping the vehicle.

Then we will discuss the various types of brake assemblies now in use. After that we have a number of other interesting technical subjects pertaining to brake work which we believe you will all find worth-while.

●

## Sealed Beam

(*Continued from page* 32)

tribution of light to the sides of the road, with sharp, clear illumination up the right shoulder, without causing uncomfortable glare to oncoming drivers.

The second, or upper beam, is named the "country beam." For use only on the open highway when there is no traffic whatever, it throws its light a considerably greater distance down the road than former types. It bathes road shoulders, warning signs, fences and curves in light, and also permits the driver to see overhanging obstacles such as branches, overpasses and the like.

While the difference in road illumination between these two beams is quite pronounced, in addition, as part of the new light system, cars using "Sealed Beam" as standard equipment will have on the instrument panel a signal which will glow red as long as the "country beam" is in use.

The hand need not be moved from the steering wheel to change from traffic to country beam or back again. The familiar foot switch at the extreme left of the floor-board will be the sole control for changing the beam. The usual light switch on the instrument panel will have only two positions: the first to turn on parking and signal lights; the second to turn on the headlights.

In announcing the new system, the automobile industry is cooperating with public authorities and civic safety groups in urging the driving public, not only to use the correct beam on both new and old cars under all conditions, but also, in the case of drivers with prior-type lamps, to improve the degree of maintenance given the entire headlight unit.

Because none of the former type lamps was permanently sealed, dirt

and moisture did penetrate. Unless periodically serviced, the efficiency of the old lamps may be impaired, so that by the end of a year's driving it is calculated that lamps improperly maintained already may have lost a third of their illumination. By the end of three years it is possible that only one third of the reflecting power remains. Under such circumstances the driver's seeing is definitely impaired. In addition, on some of the former type lamps, care must be taken in properly installing the bulbs and lenses, otherwise the beam might be thrown at an incorrect angle which would interfere with oncoming drivers' vision and do an inefficient job for the owner.

The increased light projected by the new "Sealed Beam" lamps required certain changes in wiring and generator output which are factors making for higher vehicle manufacturing costs. This, however, is regarded as a *small* item, in relation to the benefits obtained.

"Sealed Beam" headlamps are now being manufactured by various headlight producers as original equipment and also for the replacement market. Differing in some details of construction, mechanically, electrically and optically, the products of all will nevertheless produce the same lighting result, and are wholly interchangeable.

At present, there is some doubt that fleet owners equipped with former-type lamps will find it practical to install "Sealed Beam" units. The multitude of sizes and shapes of the various prior-type lamp mountings, plus the question of heavier wiring and greater power output, place certain difficulties in the way. However, the advent of replacement headlights incorporating the full "Sealed Beam" principle should materially simplify the general adoption of this development by fleets. And their optional use as *auxiliary* lighting equipment might constitute a somewhat easier way of doing the trick.

It is our understanding that some fleet operators are trying to produce a "Sealed Beam" proposition in their own shops, using standard equipment headlights and reflectors, and an extra powerful bulb. Procedure we have observed consists of "sealing" the whole business with "gasket goo," adhesive tape or what-have-you. "Sealed-Beam" engineers declare, of course, that those who try to produce this type of makeshift "sealed beam" should not expect anything in the way of success.

●

### Marmon-Herrington Line

(*Continued from page* 33)

of the 1940 Marmon-Herrington all-wheel-drive vehicles, write directly to C. A. Campbell, c/o Marmon-Herrington Company, Indianapolis, Indiana. . . . Mention of FLEET OWNER is always appreciated; often it speeds up the service.

### FWD Transmission

(*Continued from page* 39)

rear eccentric cover. The center differential locking mechanism, the speedometer-drive and the front jackshaft may be removed with the front eccentric cover. Two SAE power-take-off openings are provided, one on each side of the transmission case.

The two-speed auxiliary transmission is arranged so that a selection of gear-ratios in its low range is possible, resulting in a gear reduction ranging from 1¾ to 1, to 2½ to 1. With the proper selection of gear-ratio in the auxiliary low range, the truck will operate from 15 to 18 miles per hour in high gear, low range, thus avoiding the use of transmission gears in such work as snow-removal except when a low ratio is required, in which case the operator would shift down from high gear to perhaps the fourth or third speed, eliminating the high torque in the transmission proper that would result, if the auxiliary were not used, and it became necessary to shift to low gear in the regular transmission.

Splines and jaw-clutches in the new transmission are of the involute

ZENITH Carburetors don't have to be coddled and coaxed when the going gets tough. These babies are rugged and willing. They're made for the toughest kind of tractor service. Give quick starts, sure, smooth, economical power . . . *always.*

That's why leading truck engineers specify Zenith Carburetors as factory equipment. It will pay you to follow their lead. Specify Zenith Carburetors in the new trucks you buy. And in your older equipment, replace the "gas-hogs" with rugged, long-lived, economical Zeniths.

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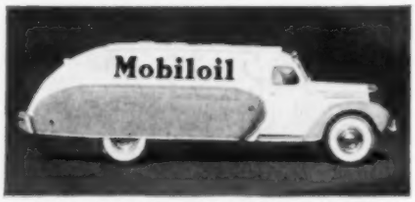
6 CU. YD. HEIL BODY WITH EXTRA SIDES AND HEIL TWIN CYLINDER HYDRAULIC HOIST

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SNOW PLOWS — BOTTLE WASHERS — DEHYDRATORS — OIL BURNERS — WATER SYSTEMS

MILWAUKEE, WISCONSIN **THE HEIL CO.** HILLSIDE, NEW JERSEY


type. The transmission case is well ribbed to provide cooling and to reduce noise. It also provides an ample oil capacity for continuous low gear operation.

A parking brake is provided on the mainshaft of the upper silent chain sprocket when the auxiliary transmission is not used and on a counter-shaft on the auxiliary transmission when the auxiliary unit is added to the regular transmission.

This new transmission is now available in the M series line of FWD trucks which range in capacity from 6 to 25 tons, in both four-wheel and six-wheel-drive, with optional Diesel or gasoline power plants.

•

### Fifth-Wheel

(*Continued from page* 37)

once-a-year lubrication; equalizer tube, which keeps load balanced between springs; springs mounted at right-angles to wheels, to prevent excessive up-and-down motion; and Bendix-Westinghouse air-brakes, with slack adjusters and diaphragms mounted on the axle. A safety-chain, with grab hook, is built-in as standard equipment.

The scale weight of the Silver Eagle fifth-wheel unit is 675 pounds. This weight includes draw-bar, tongue, tire-carrier, spring mounting, springs, safety chain, diaphragms, slack-adjusters—in fact, the entire fifth-wheel complete, with the exception of the tires, wheels and axle.

For full details, blue-print, technical information and prices on the new Silver-Eagle fifth-wheel assembly for full-trailers, address Julius Gaussoin, President, Silver Eagle Company, 7552 N. Denver Avenue, Portland, Ore. . . . You'll mention FLEET OWNER, won't you?

•

### Driver-Data Available

AN UNEMPLOYED Akron truck driver was wandering around Los Angeles looking for a job. . . . His name was Howard Klinefelter, we are told.

He found a job with United Parcel Service, but the boss wouldn't take him without a recommendation. As Klinefelter was a stranger in the west, he wrote back to Akron to the J. Gordon Gaines insurance agency.

A search of the file of drivers revealed that Klinefelter, while employed by Motor Cargo, Inc., had driven three years, from January 6, 1936 to January 6, 1939, without an accident.

The Gaines agency immediately sent Klinefelter a three-year gold pin, an engraved safety certificate showing his safety record, and an identification card showing him to be an honor operator.

Armed with this indisputable evidence of his driving ability, Klinefelter now has a self-earned and impersonal recommendation, good in any state in the Union.

J. Gordon Gaines, Inc., maintains a file of over 17,000 truck drivers, according to Harry M. Van Doren of the Gaines organization. Their address is 1107 Akron Savings & Loan Bldg., Akron, Ohio. . . . Write them if you ever need data as to drivers' backgrounds.

•

### New Oil-Filter Bulletin Available

MICHIANA Products Corporation announces a new bulletin (No. 839) which illustrates and describes the complete line of Michiana and H-W Duo-Flo oil-filters for use on gasoline and Diesel engines. . . . The bulletin includes various types of filters, such as the re-packable element type, in which just the filtering material need be changed, as well as the replaceable element type, in which the complete filtering element is replaced. . . . An interesting oil-flow chart is included, which clearly indicates the Duo-Flo principle of filtering. . . . For free copy address R. N. Burckhalter, c/o Michiana Products Corporation, Michigan City, Ind., mentioning FLEET OWNER, if you don't mind.

### Chevrolet's Fleet Drives Safely

THE FLEET Safety Program sponsored by Chevrolet for its more than 1,400 operators of company cars used in sales work was the subject of intensive study by the National Institute for Traffic Safety Training which held sessions in Ann Arbor, Mich., recently. The entire group enrolled in the vehicle fleet safety course came to Detroit to study Chevrolet's program.

The fleet safety program has been developed since 1933, under the direction of C. A. Kleist, Chevrolet's budget director. In the six years since Mr. Kleist set up his program, Chevrolet's insurance premium rate has dropped 64 per cent, a saving directly traceable to the safety campaign. Reduction in cost of claims paid in 1938 as compared with 1933 was 85 per cent, Mr. Kleist pointed out, despite the fact that Chevrolet now employs approximately 500 more drivers than it did in 1933.

Chevrolet's accident-rate drop has been largely due to increasing "safety consciousness" on the part of drivers, Mr. Kleist said. Bulletins are sent to all field offices regularly, and posters are provided for them by Chevrolet. In addition, smaller reprints of these safety reminders are placed on the instrument-panel of each company car. "*Make this a No-Accident Month*" is the theme of each poster.

Drivers involved in accidents are required to make comprehensive reports of them. These reports are studied to determine the cause. If a driver is found to have some physical defect which may be responsible, treatment is suggested.

Success of Chevrolet's safety campaign is illustrated by the fact that in 1934, the first year of the drive. 378 accidents were reported by the less than 1,000 drivers employed at that time. In 1938, Mr. Kleist pointed out, Chevrolet's fleet of nearly 1,400 company-car operators reported only 277 accidents.

•

### Light Cuts Bridge Accidents

ACROSS the San Francisco-Oakland Bay Bridge, automobiles, trucks and buses have been passing for nearly three years at a rate of 25,000 vehicles a day, and each car, truck or bus travels eight and one-quarter miles in completing the passage. Despite such heavy traffic, there has been only one accident for every million car-miles traveled.

Since the California State Highway Commission opened it to traffic on November 12, 1936, this enviable record has established the bridge as one of the world's safest stretches of highway.

One of the deciding factors of this record is the sodium lighting that has contributed to holding the night accidents down to 1.26 for every accident in the daytime. On most highways the ratio is considerably higher. The sodium lighting system, designed by General Electric, has proven especially helpful to those driving through the fog drifting upward from the water.

•

### Gray Heads Marvel-Schebler Division

SAMUEL W. GRAY has been named general manager of the Marvel-Schebler Carburetor Division of Borg-Warner Corporation at Flint, Mich. . . . Mr. Gray has been with the Marvel-Schebler organization since 1929. . . . Carl M. Kaltwasser, formerly general manager of the division, is now attached to the central office of the Corporation.

•

### AutoLite Promotes Joyce and Behlen

ELECTRIC AutoLite announces the appointment of J. F. Joyce as National Account Manager, with headquarters in the Chicago office of AutoLite at the Merchandise Mart. . . . R. E. Behlen has been appointed Mideast Division Manager, and will be located in AutoLite's Philadelphia office. . . . Mr. Joyce formerly held the job which Mr. Behlen now fills.


WHEN OLD MAN WINTER SAYS "No"

MARMON-HERRINGTON

All-Wheel-Drives SAY "GO!"

Whether it's hot, whether it's cold, whether roads and fields, forests and hills are knee deep in mud or snow,—*there are always some jobs that must go on!*

Oil field equipment, supplies and men must be transported to and from drilling locations. Logging "shows" can't close down when blizzards howl, or when winter rains and thaws make quagmire of roads and forest trails. Ice and snow must be cleared from the nation's highways. Overland freight and passenger service must be maintained with safety on slippery highway curves and hills.

These are just a few of the many winter hauling jobs for which Marmon-Herrington *All-Wheel-Drives* are literally "made to order." Jobs that *only power and traction on all wheels can lick* with any degree of dependability and speed. Jobs that no other automotive vehicles can handle with the same sureness, safety and economy.

For hauling tremendously heavy loads over the most difficult terrain there is a complete line of mammoth four- or six-wheel-drive trucks and truck-tractors with load capacities up to 25 tons for trucks, or 50 tons, or more for tractors. For lesser loads, but just as difficult "going," we convert all standard Ford trucks, commercial and passenger cars to *All-Wheel-Drive*. There is nothing like them in low price, economical operation and amazing ability to perform on steep hills, in deep mud, sand or snow. Catalogs describing 1940 models will be mailed promptly on request. Cable address MARTON, Indianapolis, Indiana, U.S.A.

MARMON-HERRINGTON COMPANY, INC.
INDIANAPOLIS, INDIANA, U.S.A.

**WHIZ THRU WINTER with**

# RYTHM

WHIZ MOTOR RYTHM helps maintain summer operating costs—even in the coldest weather! Here's how—

- Rythm Increases Film Strength of Motor Oil 20 Times. This means positive protection against motor wear, even at freezing temperatures.
- RYTHM eliminates battery strain at starting, yet does not reduce the strength of the oil. Savings in battery replacement and recharging more than pay the cost of RYTHM.
- RYTHM does a thorough job of dissolving carbon binding gum, sludge and motor varnish—freeing sticky valves and rings. A RYTHM Tune-Up Job Cuts Gas and Oil Bills as much as 15%!
- RYTHM peps up the motor all winter long, insuring full power, easy starting, and economical operation.

Whiz

***"A Famous Name in Automotive Lubrication Research"***

Mail coupon today for sample to test on your equipment

WHIZ MOTOR RYTHM DEPT.
R. M. HOLLINGSHEAD CORP.
CAMDEN, N. J., U. S. A.

Please Send Free Sample of Rythm For Test in Our Equipment.

Company Name

Address

City State

Your Name

Your Position Size of Fleet

# In the Automotive World

### Cummins St. Paul Branch in New Home

LOCATED on one of the main arteries between Minneapolis and St. Paul, at 2350 University Avenue, the new sales and service office of Cummins Diesel Sales & Service of Minnesota, is an ultra-modern, air-conditioned job. . . . The building itself is 50′ x 90′ and is amply large to house all equipment necessary for Cummins Diesel service work. A parking lot at the rear of the building extends the area an additional 90 feet back, which provides parking space for trucks and space for future expansion. . . . Strikingly decorated and finished, the building front is of black Vitreolite, with chrome trim. . . . Ed. C. Stockland is owner and manager of this dealership.

•

### Hercules Adds Small Industrial Engine

HERCULES Motors Corporation, Canton, Ohio, announces its new Model BXB—a small 2-cylinder, industrial gasoline engine, with a bore and stroke of 2⅞" x 3" and a piston-displacement of 39 cu. in. . . . . This engine is an L-head job with fully counter-balanced crankshaft. . . . . Many of the parts used in this engine are interchangeable with the same parts in the widely used ZX series of 4-cylinder engines. . . . The BXB can be applied to a wide variety of industrial applications.

•

### Goodrich Offers "One-Sided" Whitewalls

B. F. GOODRICH Company, Akron, Ohio, announces a new tire with one sidewall in white, and the other in black. The idea behind this new tire is to permit turning the tires around (so that the black is on the outside) when the white sidewalls are scuffed to the extent that their appearance becomes shabby. . . . Prices are said to be close to those of regular all-black casings, and shortly the new "black-and-white" tires will be available in most popular sizes and in some sizes even below first-line brands.

•

### Ickes Joins Jenkins Brothers

HOWARD C. ICKES, who has for several years been connected with the Firestone Tire & Rubber Co., is now with Jenkins Bros., Tire Valve Division, according to announcement made by W. J. Frisby, sales manager. . . . Mr. Ickes will make his headquarters at the Jenkins office in Akron. He will act as field engineer, contacting tire manufacturers. . . . Mr. Ickes is well-known throughout the industry by tire, tube and valve engineers and his addition to the staff of Jenkins Bros. is regarded as a real asset.

### Sedan is Most Popular Auto Model

ALL-WEATHER protection, plus good ventilation, even in very hot summer days, leads 96 automobile buyers out of every 100, to choose a closed car. . . . By popular vote last year, more than 81% of all new car buyers selected the sedan as the family chariot, 56 out of every 100 who made that choice preferring the 4-door type, and 44 the 2-door sedan. . . . Coupes are coming up in favor, however, and last year accounted for something like 15% of new car buyers' preference.

•

### Hudson Gets "Auto-Poise" Patent

HUDSON Motor Car Company, Detroit, Mich., announces that it has been granted a patent (No. 2,169,969) covering the principle of car control known as "Auto-Poise" control. . . . The patent is a basic one, we are told, applying to any type of stabilizing attachment directly connected with the wheels. . . . It is described as "a stabilizer mechanism, employing a positive, active, mechanical force that helps to hold wheels to their course—on rough roads, in heavy side winds, and even when a tire blows out."

•

### Goodyear Reduces Tire Prices

DRASTIC reductions in consumer list prices on tires and tubes were announced early last month by P. W. Litchfield, president of Goodyear. . . . The reduction of 12.5 per cent on the price of the G-100 line in the popular 6.00-16 passenger-car size is typical of the new list; the Life Guard in the same size is reduced 12 per cent, and the standard heavy-duty tube is reduced 6.8 per cent, Mr. Litchfield points out.

•

### Arthur C. Evans Joins Gar Wood

GAR WOOD Industries, Inc., announces the appointment of Arthur C. Evans to its engineering staff. . . . Mr. Evans was formerly connected with the Continental Roll & Steel Foundry Company, whose tractor equipment division was recently acquired by Gar Wood Industries.

•

### Hinshaw Promoted at Goodyear

GOODYEAR Tire & Rubber Company, Akron, Ohio, announces the promotion of George Hinshaw, chief chemist, to the post of production manager for all Goodyear factories outside of the United States. . . . His new duties include supervision of production at tire factories in England, Australia, Sweden, Argentine, Brazil, Java and Canada.

## Some Data on the New Safety Glass

THE FIRST patent on laminated safety glass was issued to John Crewe Wood, an Englishman, in the year of 1906. It is said that Edouard Benedictus, a Frenchman, "discovered" the lamination principle in 1903 when he dropped a collodion-lined flask and noticed that the fragments of glass clung to the "plastic" lining, so that the flask "star-cracked", but did not shatter.

When "closed" cars supplanted open types, in about 1923, the need for a safety glass became imperative. More than half the persons injured in auto accidents were cut by glass. About 1924, experimental installations were made, the glass then costing from $10 to $12 a square foot. Safety plate glass for windshields appeared as original equipment on several makes in 1928, and by 1934, safety plate "all around" was standard equipment.

The first safety glass was made with a filler of cellulose nitrate that discolored and deteriorated. Some of these faults were overcome by adding actinic-ray filtering materials to the glass and sealing the edges. The next plastic used was cellulose acetate—about 1930—which produced safety glass satisfactory to a majority of motorists. Scientists recognized the need for improvement to produce glass of greater resilience through use of thinner panes and a filler which would not become brittle at low temperatures. Their efforts culminated after six years—in a new high-test safety plate glass.

High-test safety glass is made by pressing a sheet of a newly perfected transparent plastic, known as "polyvinyl acetal resin," between two layers of thin plate glass. This "sandwich" construction has been used since laminated safety glass was first introduced commercially for autos in 1924. There had been a period during the World War when safety glass was put to special uses.

The difference between the new safety glass and previously made types lies in the new plastic and use of thinner layers of plate glass—making possible a laminated glass no thicker than ordinary plate glass.

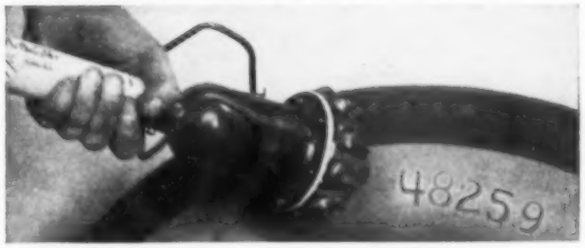
Carbide and Carbon Chemicals Corp., E. I. duPont de Nemours & Co., Inc., Libbey-Owens-Ford Glass Co., Monsanto Chemical Co., and Pittsburgh Plate Glass Company cooperated in the development of this particular new product. Six years were spent developing the new plastic and glass. Research work, materials and equipment cost approximately $6,000,000, it is said.

The new plastic and glass is available to all manufacturers of automobiles, buses and other carriers at no increase in cost over previous safety glasses. It is being produced in sufficient quantities to be available for 75 per cent of cars made in 1939.

Safety features include: (1) Great penetration-resistance at all temperatures. (2) Will not deteriorate nor discolor from sunlight or moisture. (3) Extreme flexibility when broken under impact lessens danger of concussions and fractures. (4) Comparative ease in cutting for replacement work. (5) Perfect visibility achieved through development of plate glass in thin panes. (6) Retains shatter-resistance at low temperatures.

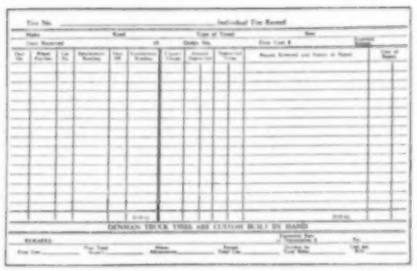
At normal temperatures, the high-test glass is about twice as "strong" (i. e., resistant to impact) as previous types; at zero, five or six times as strong. Because of its unusual bendability when broken, a passenger trapped in a car may force the new glass out of its frame with less chance of injury, according to the makers.


# HOW TO KEEP TIRE RECORDS




**IN ORDER to keep accurate tire records, a simple numbering system MUST be used. . . . The EVERHOT Electric Tire Brander (shown above) is made to order for this work, and the cost is nominal.**

**YOUR OWN branded number, plus a good card system, is the ONLY method of keeping track of tire mileage, on both new tires and retreads. . . . Each time a tire comes off, you will know just why.**

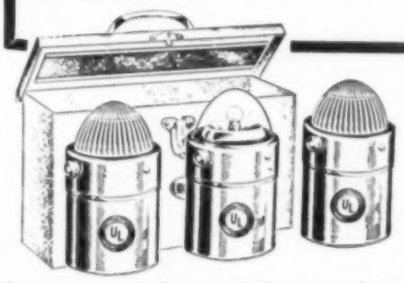


EVERHOT Branders are used by many leading tire companies in their mileage and retread departments. . . . They offer the simplest and most economical method yet devised of accurately identifying any type of pneumatic or solid tire. . . . Write us today for full details.

**FREE: With every EVERHOT Brander sold through this publication, a liberal supply of tire record cards will be furnished, like the above sample. The size is 8 x 5 inches and they are printed on durable card stock. . . . Absolutely Free!**

**EVERHOT**
**Manufacturing Co.**
**Maywood, Ill.**

# ECOLITE MODEL 60
## Electric FLARES
### Give Your Trucks Split Second Protection—They Never Fail . . .



LOW PRICED FLARES that—

Comply with I.C.C. Regulations

Are APPROVED by Underwriters' Laboratories

Follow Specifications of Society of Automotive Engineers and Proposed Bureau of Standard Recommendations.

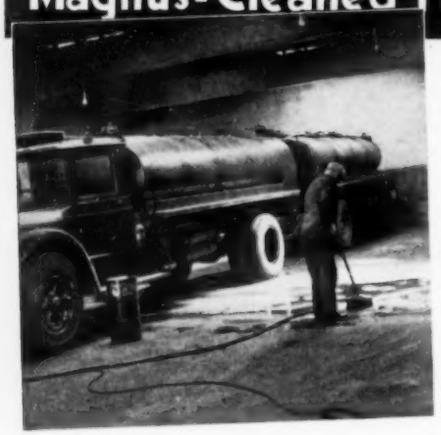
## PLAY SAFE! Equip with ECOLITE FLARES

Ecolite Electric Flares Model 60 are water-proof, dust-proof and vibration-proof. No fusees are necessary. The weather-proof switch never fails—battery has one year shelf life or will operate 60 to 80 hours. Under normal weather conditions Ecolite Model 60 can be seen one mile. All steel construction. Safe around inflammable cargo. Special steel container holds 3 flares. No rattling. No odor. No leakage.

Ecolite Flares give your trucks protection instantly. Equip with them now. At Automotive Supply Stores or write us direct.

**ECONOMY ELECTRIC LANTERN CO.,** 3100 W. CHERRY ST. MILWAUKEE, WIS.

# Magnus-Cleaned Floors Last Longer!



Cement floors are easy to clean and keep clean, if you use the right cleaner. But don't overlook other highly valuable advantages of

## MAGNUS CEMENT CLEANER

It cleans—thoroughly and completely. In addition, a Magnus-cleaned floor lasts much longer—because the harmful effect of oil and grease is ended and because the floor is hardened by the treatment.

It's whitened, too!

Best of all, the cost of Magnus-cleaned floors is very low—less than 3c per 100 square feet.

Get those oily, greasy floors of yours clean—and keep them clean—with Magnus Cement Cleaner.

**SEND FOR YOUR COPY**

Write us today on your business letterhead. Your copy of the Magnus Cement Cleaner Bulletin will be sent without delay.

**MAGNUS CHEMICAL COMPANY**

*Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants*

36 South Avenue Garwood, N. J.

**MAGNUS CLEANERS**


### Standardized Grinders

THE Division of Simplified Practice of the National Bureau of Standards has announced that printed copies of the fourth revision of Simplified Practice Recommendation R45, Grinding Wheels, are now available. This revision is identified as R45-39.

The recommendation lists the sizes and gives illustrations of the nine standard types of grinding wheels, the items included being representative of practically all grinding wheels used on standard makes of grinding machines. It is designed to simplify the stocking of wheels and to enable users accurately to order stock items.

Through the establishment of this recommendation originally in 1926, the excessive variety of sizes and shapes of wheels then being manufactured was materially reduced; and more unnecessary varieties were eliminated as a result of revisions of the schedule in 1927, 1928, and 1932. The current revision brings the recommendation into line with present-day requirements through the elimination of some items which have fallen into disuse, and the addition of others for which the demand has become active in recent years.

Copies of this recommendation may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents each.

### O'Callaghan Gets Goodrich Appointment

GOODRICH announces the appointment of Thomas O'Callaghan, Jr., of New York, as special Eastern representative of the manufacturers sales division. . . . A veteran of the Company's truck tire department, Mr. O'Callaghan will have charge of all truck fleet accounts in the East, according to J. E. Powers, district manager of The B. F. Goodrich Company.

•

### Atlas Using New Addition

PRODUCTION capacity at Atlas Press Company, Kalamazoo, Michigan, has again been increased by a recent plant addition which provides new working area of 17,000 square feet. . . . The added floor space steps up manufacture of the company's lathes, shapers, drill presses, and arbor presses. An addition of approximately the same size was completed in November, 1937.

•

### Duke Kerrick Joins Gar Wood Industries

JACK B. HAILE, manager of the road machinery division of Gar Wood Industries, Inc., has announced the appointment of Duke Kerrick as field representative. . . . Mr. Kerrick was formerly connected with the Continental Roll and Steel Foundry Company of East Chicago, Indiana. . . . The Continental tractor equipment division was recently acquired by Gar Wood Industries, Inc.

### Stellite Cutting Tool Manual Revised

A NEW, revised edition of the booklet, "Haynes Stellite J-Metal Cutting Tools", has been issued recently. It is brought completely up-to-date on many phases of cutting-tool practice and now includes a discussion of various tool bit holders and adapters. . . . This manual also recommends the proper speeds and feeds for machining many different types of metals. . . . For a free copy address Haynes Stellite Company, Kokomo, Ind.

•

### Goodrich Personnel Changes

GOODRICH announces several personnel changes in its field organization. . . . Ernest P. Weckesser, formerly manager of the Newark district, has been named manager of the Detroit district, succeeding F. O. Slutz, transferred to Akron to head dealer relations. . . . The Newark district has ben combined with the New York district, of which J. E. Powers is district manager. . . . W. A. Olson, formerly manager of the Des Moines district, has been named manager of the combined Omaha and Des Moines districts, with headquarters in Omaha. . . . W. G. Sabine, formerly Omaha district manager, has been transferred to other duties.

•

### Lee Back at Akron for Goodyear

ANNOUNCEMENT is made of the appointment of Robert E. Lee, for the last five years superintendent of the Argentina factory of The Goodyear Tire & Rubber Co., at Buenos Aires, as division superintendent at the home plant at Akron, in charge of production at Plant I. . . . Mr. Lee, a native of Baltimore, started in the rubber industry in 1913 at Akron, joined the Goodyear company in 1927, and went to Argentina as assistant superintendent in 1930.

•

### Spina Now Treasurer of Carlton Lamp

THOMAS SPINA, formerly with the National Union Radio Corporation, has recently been elected treasurer of the Carlton Lamp Corporation, Union City, N. J., in which he recently acquired an active interest. . . . Mr. Spina is a pioneer in the lamp bulb and radio tube business, and will devote his attention to manufacturing operations and engineering development.

•

### Trailers Haul Boats Across the Country

TWO BOATS—one a 67-footer, the other a 57-footer, have started across the continent from Los Angeles on special Fruehauf "Carry-All" trailers, drawn by White tractors. . . . They will be hauled to Cleveland, where they will be launched, and will proceed to New York via the Great Lakes, under their own power. . . . The trip was staged to publicize the new Paramount picture *"Rulers of the Sea"* in which two identical boats (much larger in size) play important parts. . . . Weight of the two boats hauled is about 50 and 40 tons, respectively, so you can see that the long highway trip is going to be "some haul."

Webster-izing
THE HIGHEST QUALITY OF RETREADING—RECAPPING

SEE THAT YOUR RECAPPER USES
GENUINE CERTIFIED WEBSTER TREAD

LOOK FOR THE "W" IN THE CENTER OF TREAD
WEBSTER RUBBER CO. Warren, Ohio

## New Safety Badges for Kirk-Alger Drivers

TRUCK DRIVERS of the Geo. F. Alger Co. and the Kirk Transportation Co., Detroit Mich., will receive special safety badges indicating the length of time they have driven without accidents, it was announced recently by Geo. F. Alger, president of both companies.

The badge is a distinctive design in gold, green and blue, with provisions for attaching buttons, to be changed twice yearly, showing increasing terms of service without accidents.

When a driver completes six months of safe operation, he receives his badge. If his record remains clear, the removable button is changed every six months and this goes on year after year. The driver loses his badge if he has an accident.

This new feature is in addition to the already comprehensive safety program which is constantly in effect in both Kirk and Alger organizations.

●

## There's Still Plenty of Oil

EIGHTY per cent of the world's petroleum reserves is still untapped in oil shales awaiting development when and if present pools are exhausted, industrial chemists estimate. Drilling methods used today will create others which can be used to tap this enormous reserve, it is believed.

Chemists see a growing need for petroleum derivatives in the world of tomorrow. They predict new chemical processes will be developed further to utilize crude oils and to bring even greater efficiency to the present uses of fuels and lubricants.

SAVE Fuel and Repair Bills with
MACMILLAN RING-FREE MOTOR OIL
MACMILLAN PETROLEUM CORPORATION
530 W. 6TH STREET, LOS ANGELES, CALIF.

Be sure to replace a TIMKEN Bearing with another *genuine* TIMKEN Bearing. Look for the trade-mark "TIMKEN" stamped on the cup and cone.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
TIMKEN
TAPERED ROLLER BEARINGS

Gunk CLEANS CLEAN
DEGREASER
COLD PROCESS
GENERAL PURPOSE
GARAGE AND CHASSIS
GREASE REMOVER
Gunk CLEANS CLEAN
Not only dissolves grease and oil but emulsifies it as well
Your wholesale jobber has GUNK CONCENTRATE or can pick it up for you—ASK HIM!
THE CURRAN CORP., BOSTON OR WEST COAST: 445 TURK ST., SAN FRANCISCO, CALIFORNIA

FOR THE OIL GASOLINE & WATER CONNECTIONS
VELLUMOID
VELLUMOID
Always Keep a Supply of VELLUMOID On Hand
No delay—a knife or ball-peen hammer, and you have Quality Gaskets immediately available.
THE VELLUMOID CO., WORCESTER, MASS.

TOP QUALITY GEAR LUBRICANT
Most economical Insurance that you can buy. INSIST UPON —

"STURACO"
EXTREME PRESSURE ("EP")
GEAR LUBRICANT

D.A.STUART OIL CO. Ltd.
ESTABLISHED 1865
CHICAGO U.S.A.
Warehouses in Principle Industrial Centers

NEW SUPER KEX TIRE PLUGS

Will save many dollars and valuable time in tire trouble, repairs, expense and road delay. A new departure from conventional design. With convexed surface on top or stem side of patch head to fit the inner wall curvatures of casing eliminating air space and seal the hole and fabric break all the way through with dynamic force and solid support under the break. Attained with the patented KEX method, to protect the structure and service durability of casing, and avoid premature mileage failure.

No. 14Q KEX 4" head, 3/8" stem, No. 12Q KEX 2¼" head, 3/8" stem, No. 11Q KEX 2¼" head, ¼" stem.

Plug stem is compressed in tapered quill.

Automotive wholesalers sell them or write us.

THE WEDLER-SHUFORD CO., 2222 Olive St., St. Louis, Mo.

OUTSTANDING QUALITY

● High tensile strength, quick-acting flux and uniform high quality combine to make possible the faster, cleaner work which has given Gardiner Flux-filled Solders their high standing in the automotive industry. Modern production methods, exclusive with Gardiner, permit prices lower than you pay for even ordinary solder. Line includes Solid Wire, Bar and Body Solders . . . also Permanent Lining Babbitt Metal.

Gardiner METAL CO.

4810 SOUTH CAMPBELL AVENUE, CHICAGO, ILL.

I CUT MY TIRE COSTS PLENTY WITH GOODRICH SILVERTOWNS

Truck owners find that truck tire costs hit rock bottom when they switch to Goodrich Silvertowns. Here's why: Silvertowns have a new invention—Triple Protection—built into the sidewall. It positively checks 80% of all premature failures. It cuts down on tire delays—adds mileage. See a Goodrich dealer for prices.

NO PREMIUM PRICE

Goodrich Triple Protected Silvertowns
FOR TRUCKS AND BUSES

## Synthetic Rubbers Made from Oil

CHEAP sources of synthetic rubber have been found in mineral oil residues—by-products of the petroleum cracking process—and sulfur. The synthetic rubber is said to be similar to the natural product in properties, and can be vulcanized.

The oil first is mixed and baked with crude sulfur. Rosin is added and the mixture is additionally baked. Sulfuric acid is added, followed by hydrochloric acid. After the acid treatment comes neutralizing with caustic soda and drying the rubber mass.

Another new substance, rubber-like in character, has been created from sulfur and chloro-benzine at a temperature of 240-260 degrees centigrade. It is the product of 10 years of research in the vapor phase treatment of organic compounds with molten elements, particularly sulfur and selenium.

Remarkable property of the new substance is that the rubber-like property is lost when the substance is dissolved and is regained again upon precipitation with acid. This may mean that cloth and similar substances may be impregnated with it.

●

## New "Petroleum" Movie Films Available

WITH the aim of keeping its extensive motion picture film library, dealing with the mineral industries, abreast with scientific and technologic attainments, the Bureau of Mines, Department of the Interior, has recently completed the revision of four petroleum films. Although the original titles remain unchanged, the revised films make available for visual-education work a fund of new information pertaining to the manufacture of gasoline, the manufacture of lubricants, the proper uses of lubricants in the operation and care of automotive equipment, and a comprehensive story of the evolution of the oil industry. Each of these four films has been revised through the financial assistance of the original cooperating companies.

Bureau of Mines Film No. 99, *"The Story of Gasoline,"* takes the observer on a tour through a modern refinery and shows intricate equipment required to convert oil into motor fuel by the proper use of heat and pressure. An outstanding feature of the film is the animated portrayal of the behavior of hydrocarbon molecules, giving a visual representation of chemical reactions known as "hydrogenation" and "polymerization," now employed to obtain additional quantities of motor fuel from natural-hydrocarbon substances. Some exceptionally fine photography shows how gasoline is used to extend commerce and add to the pleasure of recreational pursuits.

A somewhat similar treatment is given Film No. 120. *"The Story of Lubricating Oil,"* in that it shows how lubricating oils are made, and how paraffin wax —a detrimental substance in lubricating oils—is transformed into useful products.

Film No. 151, *"Automobile Lubrication,"* is a 1-reel film that should be used extensively in educational work by those concerned with modern methods of lubricating automobiles. By means of animation, a pleasure passenger-car is taken to the "lift" where an expert attendant explains the many necessary acts of changing oils and greases and conditioning a car for safe driving and for reducing insidious hazards of excessive friction within the mechanisms of the automobile engine, steering apparatus, and chassis.

Film 153, *"Evolution of the Oil Industry"* (revised), was recently given its premiere showing at the World-

Petroleum Exposition, Houston, Texas. Whereas the former film of this number contained 3 reels, the new film has been lengthened to 4 reels, in order to show many new developments in petroleum technology in all its branches. None of the important allegorical or historical episodes has been deleted in revising the film. Petroleum pitch is used to caulk the seams of the Biblical ark, and the drilling of the Drake well is shown in detail. However, the new film shows, in contrast, operations attending the drilling of wells to depths of nearly three miles. It also depicts exploration for oil in inundated terrain using "marsh buggies"; contrasts refinery operations of the period of the "cheese-box" still with those of a modern refinery where both fuels and lubricants are made; and shows the use of lethal chambers to test the efficacy of insecticides.

Additional prints of Films Nos. 113, 114 and 115, visualizing a journey *"Through Oil Lands of Europe and Africa,"* have been obtained to meet the steady demand for them. These 3 films show oil fields and refineries and methods of oil storage and transport in Germany, France, Spain, Morocco, Algeria, Italy, Hungary, Rumania, Poland, Greece and Egypt. The films present many quaint and interesting views of life in the countries which have figured so prominently in the drama of recent international political affairs.

Copies of these films, which are all silent, are available in 16-mm. and 35-mm. size for exhibition by schools, churches, colleges, civic and business organizations, and others interested. Applications should be addressed to the Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Pa. No charge is made for the use of the films, although the exhibitor is expected to pay the transportation charges.

●

## Survey Shows Most Haulage is "Local"

INTERSTATE motor truck haulage is very largely confined to traffic with adjoining states, road-use studies by the U. S. Bureau of Public Roads have shown. Comparing perecentages of annual round trips exceeding 200 miles in 11 widely scattered states, it was determined in every instance that the great majority of trips crossed but a single state border-line.

●

## Road Transport and Radio Join as Market Aid

HIGHWAY transportation and the radio bring livestock producers and buyers closer together and "thus have contributed to the growth in direct marketing", according to an article on "Direct Buying of Livestock" in a recent issue of *The Agricultural Situation*, monthly publication of the United States Department of Agriculture.

"Highway improvement and the increased use of motor trucks for transporting livestock," the article says, "have expanded the market outlets available to individual producers and have contributed to greater flexibility in marketing. Motor truck transportation moves livestock to slaughtering plants conveniently and quickly, thereby keeping shrinkage at a minimum.

Meanwhile the radio and its use in market news dissemination enables producers to keep informed regarding current market conditions and prices at numerous buying points. These developments have facilitated direct dealing between producers and buyers and thus have contributed to the growth in direct marketing."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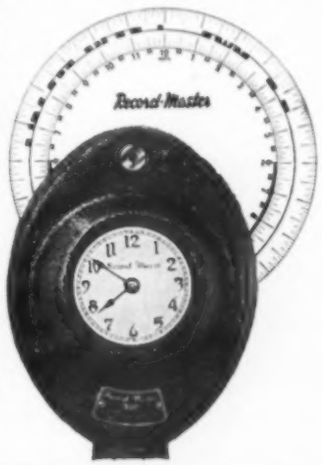
Of course not—if you knew it! Yet, that's *exactly* what you are doing without realizing it, if you haven't installed RECORD MASTER on each truck of your fleet. Several valuable minutes of every hour of the working day are being needlessly tossed away. DELAYS, DELAYS! Some of them unavoidable, many of them lost by carelessness. But in any event, *those lost minutes cost money.* We've found that they will amount to as much as $400 a year, PER TRUCK!

RECORD MASTERS help you stop these losses and instead of throwing away $400 a year per truck, you can make that much each year in EXTRA PROFITS. Let us show you how. Ask us for the details and proof. We'll send you promptly a folder giving complete information.




## THIS CHART Shows YOU

Every minute of the truck's working day, the RECORD MASTER is silently and automatically recording a complete, visible summary, minute by minute, of what goes on. At the end of the day or week the chart can be removed and carefully studied for the story it will tell. When you write us, ask also for information about the STOP MASTER which automatically eliminates excessive motor idling on milk trucks or other short haul and delivery units.

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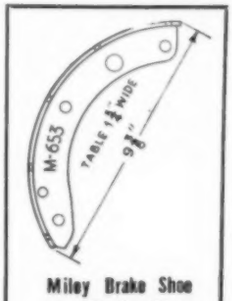


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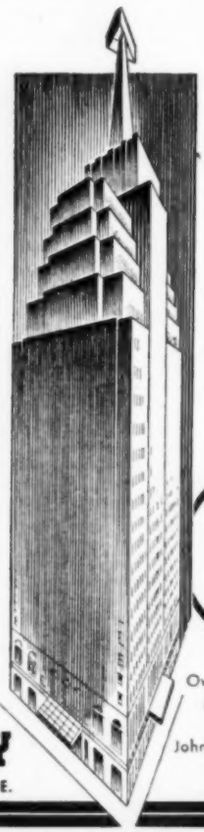

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## Transportation Area Most Popular at Fair

AN INDEPENDENT survey has shown that the transportation area at the 1939 New York World's Fair was the most popular exhibit space on the grounds. The same survey showed the typical Fair visitor was far above the average man-in-the-street financially, in education and in leisure.

But an even better portion of people with large incomes were attracted in the transportation area than to the Fair in general. Said Market Analysts, Inc.: "In October, 50 per cent of the people attending the Fair owned automobiles, but 70 per cent of those visiting the transportation area owned or operated autos."

Market Analysts, an independent research organization whose findings have been recently made public, reported that of the seven most popular exhibits at the Fair, five were in the transportation area. General Motors' Futurama accommodated 5,180,000 persons, 13,000,000 visited the GM exhibit; Chrysler Motors reported an attendance of 7,005,018; and Ford Motors, 8,181,067.

Fair visitors, said Market Analysts, showed not only a serious interest, but a "fighting-to-get-in-enthusiasm" for the best industrial exhibits. The big industrial exhibitors ran their halls to capacity for a good part of the Fair, and, more important, packed them with a selective public.

●

## All "Rubber" Could Be Made from Oil

NO longer is the United States dependent upon other nations for an emergency supply of rubber, industrial chemists say. Only a few months would be needed to set up machinery for taking hundreds of thousands of tons of raw material for synthetic rubber from the nation's almost inexhaustible supply of petroleum and natural gas.

Germany manufactures a "buna" type rubber from alcohol for about 60c a pound, but the United States can duplicate it for about 30c using petroleum or natural gas by-products. Simplification of processes could reduce that figure even more, engineers believe.

The time is not far distant, in the opinion of leading rubber technologists, when synthetic rubber may be used almost exclusively in this country, not because of necessity, but because it is superior. At least three different formulas for synthetic rubber equal or superior to natural rubber, already have been developed and research in this field is proceeding apace.


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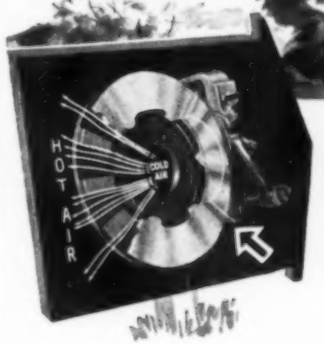


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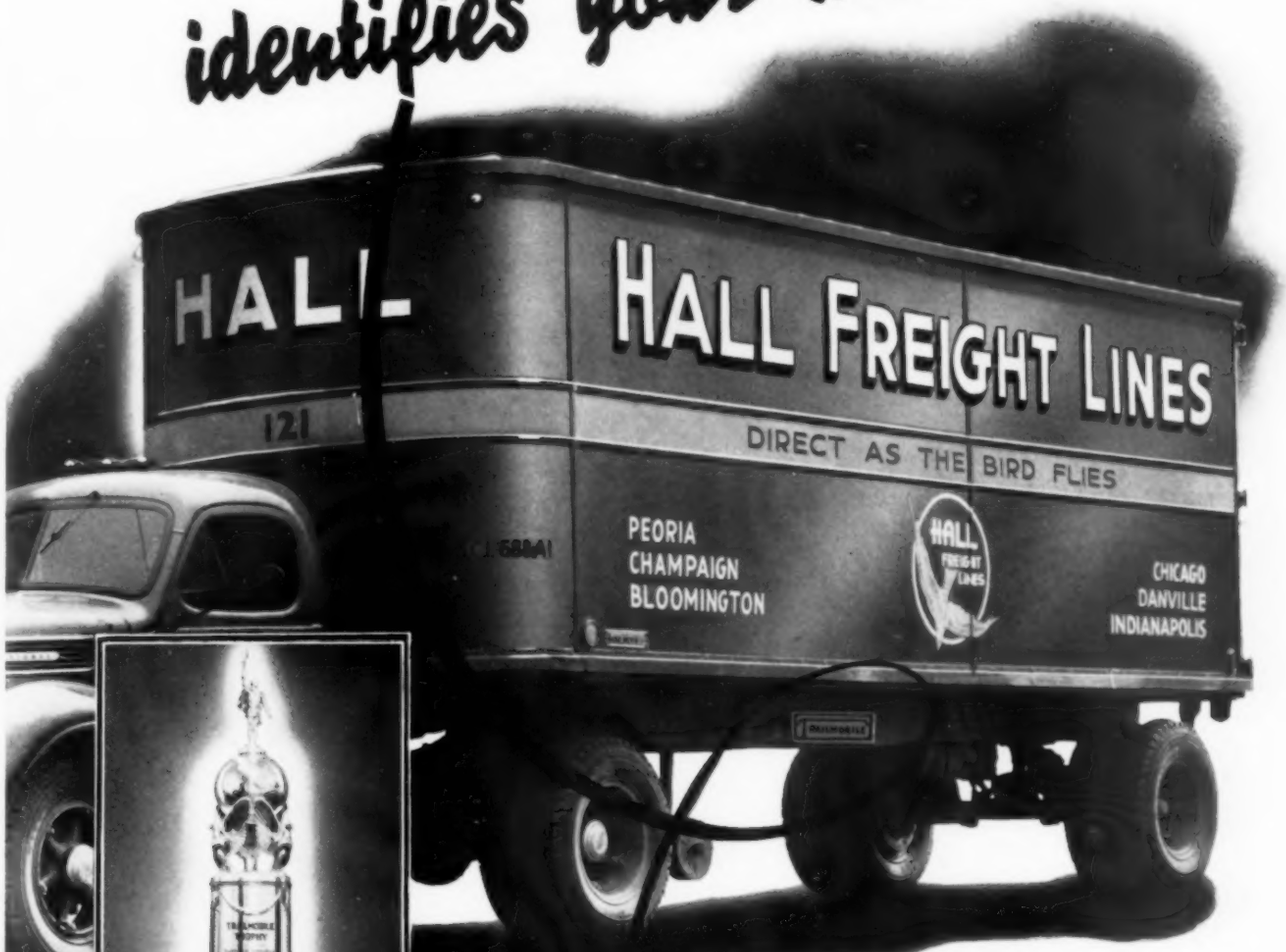

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